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THE Gardeners' Chronicle

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AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 38.0°

ACTUAL TEMPERATURE—
The Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, December 30, 10 a.m. Bar. 29.4. Temp. 50°. Weather Wet.

1925.

GARDENERS have every reason to be satisfied with their results in the past year; crops generally have been good—much better than they promised early in the season; horticultural societies have carried out successful programmes and organised shows that have been well attended; the special floricultural societies continue to make headway; plenty of novelties have been forthcoming and progress has been maintained in all branches of our craft. No event of outstanding importance took place in 1925, but it must be remembered that the Chelsea show alone is of sufficient magnitude and importance to attract visitors from all parts of the world and this show is now probably equal to many of the international exhibitions of the past. Those at York, Shrewsbury, Cheltenham, Birmingham, Brighton and the more important ones in Scotland are fast regaining their pre-war importance, whilst the marvellous success of the new Southport exhibition proves that the day of the flower show is by no means over and that success may be achieved if the organisers are men of vision and prepared to learn from the successes and failures of others. The meetings of the Royal Horticultural Society have been well attended and the exhibitions in connection with them as interesting as ever. Apart from the fortnightly meetings and the Chelsea show, the special exhibitions at Holland Park Hall, the vegetable show, fruit show, Orchid show, and the amateurs' show were all more or less successful, if only from the reason of attracting amateur exhibits, for it is greatly to be regretted that traders almost exclusively monopolize the space at the majority of the R.H.S. exhibitions, the fine exhibits by amateurs of pre-war years being greatly missed. The cause is not far to seek: the expense of exhibiting has increased greatly, and whereas traders can recompense themselves from the advertisement and trade they derive from exhibitions, amateurs nowadays find themselves unable to incur the great outlay. It was a wise move on the part of the Council of the Royal Horticultural Society to increase the money prizes for gardeners at the special fruit and vegetable exhibitions, but, even so, the balance to the exhibitor is on the wrong side even when he wins a fair share of the prizes, which should be made more liberal still. If something could be done to attract exhibits from the best of our private gardens to these metropolitan exhibitions it would, we think, be greatly in the interests of horticulture. The most gratifying feature of the past twelve months is the steady increase which all the special floricultural societies have made. The National Rose Society adds success to success, has a membership as large as the R.H.S. had at a time many of us can remember, and its shows have attained an importance in keeping with its membership. The National Chrysanthemum Society has also enjoyed a successful year; its autumn exhibitions have far outgrown the accommodation which the Horticultural Hall at Vincent Square affords. Remarkable progress has also been made by the National Dahlia Society, whilst the British Carnation Society, the National Sweet Pea Society and the Imperial Fruit show have all done good and useful work. The Orchid societies in the Manchester district finished the year in a stronger position than at the beginning and enter on the new year with the brightest prospects. In a review of the past twelve months the valuable work which has been done by the various horticultural and scientific institutions must not be overlooked, and although progress in this direction may seem slow, the cumulative results add greatly to our knowledge, both of the behaviour and requirements of plants and the conditions under which they succeed best. Gardens in 1925 were never more beautiful, for flowers were exceedingly plentiful, and seldom has their season been more prolonged, for the weather of autumn and early winter was kind, and only comparatively recently did the outdoor display finish. Some of the fruit crops were disappointing, but recompense was afforded in the bountiful yield of Apples, which have seldom been finer in quality. The vegetable crops have, with few exceptions, been remarkably good, and Potatos, which constitute one of our most important vegetables, yielded well above the average. With the decline of so many of the large gardens of the nobility, owing to the vastly increased cost in their upkeep, it is gratifying to notice the spread of municipal parks and gardens everywhere, indeed, in some cases large private gardens have been acquired for the purpose and converted into pleasuances for the citizens and town's folk. The beautifying of streets and boulevards with trees and shrubs in the town-planning schemes adopted by most of the important municipal authorities is another instance of horticulture adding to the amenities of our civic life, and the influence these public gardens and parks have in fostering interest in gardening amongst the community must be very great. The love of beautiful flowers and plants is reflected in the increased output by market growers, whose methods of culture, whilst necessarily specialised, are not excelled. Our gardens are still being enriched with new plants from other lands, thanks, largely, to the introductions by plant collectors in Asia, who have given us not only new flowering plants, but trees and shrubs of great beauty, and it is doubtless due to their discoveries and the introduction of new species of Rhododendron that this flowering shrub has become so fashionable and popular. When the new Rhododendron house at Kew is completed and planted, opportunity will be afforded of seeing these new Chinese and Tibetan species of Rhododendron growing and flowering. Apparently no great advance has been made with the proposed new horticultural hall and the Fellows of the R.H.S. will be anxious to learn from the report of the Council in February, when its erection is to be commenced. Most of the meetings of the special floricultural societies synchronise with the R.H.S. fortnightly shows, the Hall at Vincent Square being the "clearing house" of horticulture. If accommodation could be found for these lesser societies and organisations, including the trade associations, in the new building, we think that both horticulture and the R.H.S. would benefit thereby. The hand of death robbed horticulture of many of its distinguished exponents in 1925. Saddest of all was the untimely end of the capable Secretary of the Royal Horticultural Society, Mr. W. R. Dykes, who was also one of our most valued contributors. We have also lost by the death of Mr. William Watson, one of the finest plantsmen of contemporary times, and in Mr. James Whitton the prince of park superintendents. Amongst others whose loss we especially mourn are Mr. John Heal, whose special province was indoor plants which he grew so well and did much to improve; Mr. Elisha J. Hicks, the successful Rose grower; Mr. C. Harman Payne, a man of distinguished personality, and a great lover of florists' flowers; our colleague, Mr. J. K. Ramsbottom, a young man of brilliant promise; Mr. Horace J. Wright, a distinguished son of a distinguished father; Mr. Whitpaine Nutting, head of a famous seed firm; Mr. William Bates, a veteran gardener and one of the oldest Committeemen of the R.H.S.; and Field-Marshal Lord Grenfell, a former President of the Royal Horticultural Society.

The New Year.—The Editors and staff of *The Gardeners' Chronicle* tender their heartiest thanks to all contributors, correspondents and advertisers for assistance rendered generously during 1925, and to them and to a world-wide circle of readers they offer good wishes for 1926.

"The Gardeners' Chronicle" Almanac for 1926.—Our Almanac for the present year, giving the dates of the principal flower shows in Great Britain, and of the meetings of horticultural and botanical societies, is now being prepared, and will be published in our issue of January 9. Secretaries of horticultural, botanical and other societies are requested to send the dates of their shows, meetings, etc., not later than Monday, January 4, in order that they may be included in the Almanac.

Mushroom Maggots.—*Farmers' Bulletin* No. 789, issued by the United States Department of Agriculture, deals with Mushroom pests and how to control them. The troublesome maggots which infest Mushrooms are the larvae of two-winged gnats or flies belonging to several species. The female is capable of laying nearly a thousand eggs, and usually these are deposited at the junction of the stem and cap of the Mushroom, or in the manure or soil at its base. In a warm temperature, the eggs hatch within three days, and the larvae at once bore into the stem or cap of the Mushroom, riddling it and causing it to break down. Seven to ten days afterwards, the larvae enter the ground and pupate. The pupal stage lasts from four to seven days, when the adult insects emerge and soon commence egg laying. Amongst remedies recommended are the reducing of the temperature to 55°, fitting a gauze screen to prevent the gnats entering the house, and fumigating with carbon disulphide just previous to spawning. Fumigating with nicotine will kill the adult flies, and fumigation is recommended at least once a week while the beds are in bearing. Cyaniding may also be resorted to, and this should be done while the atmosphere of the house is relatively dry. The *Bulletin* also deals with the Mushroom mite, springtails, woodlice, slugs and crickets.

Public Grants in America for Agriculture and Horticulture.—The Department of Agriculture U.S.A., is providing for an increase of $2,600,000 in its estimates for the Budget Bureau. Of this sum, $80,000 (minus $1,000) is to be allocated for investigations of plant diseases and pathological collections ; $128,325 for investigations of diseases of orchard and other fruits ; $108,095 for the investigations of forest and ornamental trees and shrubs ; and $36,600 for the purchase. propagation, testing and distribution of new and rare seeds. The total appropriations of the Plant Industry Bureau are estimated at $3,748,325.

Late Planting of Trees and Shrubs.—The exceptionally severe weather during November and December has seriously delayed the contemplated planting of trees and shrubs throughout the country. In such circumstances gardeners are rather liable to overlook the nurseryman's side of the question, and forget how the untoward and totally unexpected early winter affects him. If only for a selfish reason, the nurseryman is always anxious to execute all orders for trees and shrubs as early in the autumn as possible. He is then able to take stock early in the coming year, and plant up the quarters in good time before the growing season arrives. It is small wonder, therefore, that very many nurserymen view the present conditions—and, we fear, letters urging the speedy delivery, which is impossible—with feelings akin to dismay. While the practice of autumn planting of hardy trees and shrubs, which has so many followers, has much to recommend it, we would point out that the work may be carried out for quite a considerable period with full confidence of success if ordinary precautions are taken. Although we have become accustomed to speak of autumn planting in connection with garden work, we need scarcely remind our readers that with our climate it is impossible to say when autumn ends and when spring begins. Every planter can recall seasons when, with but brief intervals, on account of rains or occasional light frosts, planting could have been continued from the fall of the leaf to the bursting of the new buds. Purchasers from reputable nurserymen may always have full confidence that the trees and shrubs have been properly prepared for transplanting, and, what is equally important, are well-packed, so that even though they are received a little later than would have been wished, no fears need be entertained, Indeed, if, as they say, the old saw—which has it that "when there is ice sufficiently thick to bear a man's weight before Christmas, there is not sufficient for a duck after"—holds good, this later receipt of nurseryman's stock will prove to be a blessing in disguise, and the later-planted trees and shrubs will be the more successful. As is well-known, planting of many species may be continued long after the first heralds of spring have arrived, provided the work is well and truly done, and the ordinary precaution of applying a light mulch over the roots, to prevent excessive evaporation. is practised.

Mr. Walter Charles Slocock, V.M.H.—While practically every nurseryman in the British Isles, and many over-seas, is well-acquainted with the business of "Slocock, of Woking," the name will probably be strange to most amateurs and private gardeners. This interesting anomaly in connection with our largest trade grower of trees and shrubs shows how distinct are the wholesale and the retail nurserymen in this country, for the enormous business of Mr. W. C. Slocock at Woking is wholesale. The vastness of the business may, perhaps, be realised when we mention that the Goldsworth Nursery has a road frontage of fully two miles, and there are various outlying nurseries. Mr. Walter C. Slocock was born at Wraysbury, but he comes from a family whose names are inscribed in the archives of Newbury so far back as A.D. 1600, where its members have long been engaged in the important businesses of banking and brewing. It will be seen that Mr. Slocock did not inherit his inclination to a nursery business. This may be said to have been the outcome of the long friendship between his father and Mr. Anthony Waterer, the noted nurseryman of Knaphill. and it was at Knaphill that Mr. Slocock commenced his career. He then spent four years in various other nurseries and also worked for a time in France, and in Belgium. Returning to England in the autumn of 1877, Mr. Slocock took over the old-established Goldsworth Nurseries, at Woking, which had then lost much of their former importance. It was originally owned by a Mr. Turner, and early in the eighteenth century Mr. Donald had made it famous for new and rare trees and shrubs. Loudon was a close friend of Donald and made frequent visits to the nursery. After the death of Mr. Donald, misfortunes seem to have fallen on the erstwhile famous Goldsworth Old Nursery, and, when Mr. Slocock took it over, its area had dwindled down to twenty-four acres. Mr. Slocock is modestly silent on the matter, but those who know him realise that by dint of strenuous and long days of hard work, combined with a keen intuition of values and demand, he has built up his present incomparable nursery business, which has a larger acreage and has produced a greater number of trees and shrubs than any other in this country, and probably in the world. In addition to his home trade, Mr. Slocock has exported enormously to the colonies, especially to Australia and New Zealand, and to the United States of America. His aim has always been in the direction of what may be termed mass production, which permits the profitable growing of the rarer kinds, which would otherwise be of prohibitive cost, and so creating a demand for them. Mr. Slocock possesses a strong personality, a generous disposition, and is blessed with a vigorous constitution and unbounded energy. The length of his working days would not meet with the approval of the trades unions, for he is in his office or the nursery early and late. Mr. Slocock has always declined public honours and responsibilities, and he finds sufficient relaxation from his absorbing business interests in his intense love for nature in every form. He has a wide knowledge of the difficult family of Coniferous trees and takes an especial interest in Rhododendron hybrids. In appreciation of the great work he has performed in the raising and distribution of the stocks of rare trees and shrubs, Mr. Slocock was awarded the Victoria Medal of Honour by the Council of the Royal Horticultural Society in 1916. Latterly, Mr. Slocock has received great assistance in the management of his enormous freehold nursery from his son, Mr. Walter Ashley Slocock, who, so soon as he became eighteen years of age, took part in the Great War, first with the Surrey Yeomanry and later as a lieutenant in the Royal Artillery. His second son, Mr. Oliver Slocock, is, as his father expresses it, "soon coming on," and he may have every confidence that, when the time comes, the traditions of Goldworth will be carried on and extended.

MR. WALTER CHARLES SLOCOCK, V.M.H.

Chilean Nitrate Industry.—According to the *Journal of the Royal Society of Arts*, the consumption of Chilean nitrate is gradually increasing ; the number of works in operation at the end of 1923 was eighty, compared with fifty-five out of a total of 150 in the beginning of that year. The production during 1923 was 1,903,524 metric tons, compared with 2,772,254 metric tons in 1913. Since the close of 1923 some ten or twelve additional works have resumed operations, and the rate of production is increasing correspondingly. During the past decade the United States has become the greatest customer of Chilean nitrate, and it is estimated that 900,000 tons were used in America in 1923. The world's consumption of nitrate is 2,170,000 metric tons. Germany, before the war, consumed about 800,000 tons per annum, or nearly as much as all the other continental countries combined.

Sweet Pea Lectures.—We feel sure that many horticultural and kindred societies will welcome the offer of the National Sweet Pea Society to provide expert lecturers on Sweet Pea cultivation. The principal members of the Society are prepared to give lectures on payment of their out-of-pocket expenses only. Secretaries of societies wishing to take advantage of this opportunity should write to the secretary of the National Sweet Pea Society, Mr. A. C. Bartlett, at 19, Bedford Chambers, Covent Garden, W.C.2, giving as long notice as possible, and he will arrange for a lecturer, who, whenever possible, will be selected from the neighbourhood in which the lecture is to be given. The N.S.P.S. is also willing to consider applications for special lecturers.

Transportation and Conservation of Ripe Fruits.—A lecture entitled "Some General Problems of the Transport by Sea and Conservation in Store of Ripe Fruit" will be delivered before the members of the Society of Arts, John Street, Adelphi, W.C., on Wednesday, January 27, at 8 p.m., by Dr. John McLean Thompson, F.R.S., Professor of Botany at the Liverpool University.

Admission Fee to Kew Gardens Reimposed.—The recommendation of the Select Committee on Estimates to reimpose the admission fee of one penny to Kew Gardens (see *Gard. Chron.*, vol. LXXVIII, p. 161) has been adopted by the Ministry of Agriculture and Fisheries, and took effect on January 1. The admission fee of one penny—on other than students' days—was abolished in April, 1924 : it previously yielded a revenue of about £5,000 per annum. The present admission fee of 6d. on students' days (Tuesdays and Fridays) will continue to be charged.

Bagatelle Rose Trials.—A trial of Roses will be conducted at Bagatelle as usual during the forthcoming season. Plants sent for trial should, if possible, be growing in pots, and at least five bushes of each variety should be dispatched, addressed "Roseraie de Bagatelle," Bois de Boulogne, Paris. The origin and type of Rose, together with any special cultural requirements, should be forwarded at the same time. The plants will be grown in the open for two years and will be judged in the October of 1927. The Superintendents of Parks, at the address given, will forward on application for same special labels, facilitating the admission of the plants without paying customs' duties.

An English Lady's Success in America.—The prize of $500 offered by the Garden Club of Allegheny, Pennsylvania, U.S.A., for the best painting of flowers or gardens in the twenty-fourth International Exhibition of Paintings at Carnegie Institute, Pittsburg, has been won by Miss Emily Court, a native of London, for her painting, "Blue and Silver."

Scotch Potato Registration Trials.–The Scottish Board of Agriculture has issued a summary of the report made by the Scottish Potato Synonym Committee relative to the registration and immunity trials held at the Board's Plant Registration Station. In the first year's test the varieties numbered one-hundred-and-four and of these the committee found that ten were identical with immune standard varieties, fifty were distinct and free from Wart Disease, seven resembled, but were inferior to, immune standard varieties, twenty-one were identical with non-immune standard varieties, thirteen were susceptible to Wart Disease, and three stocks were too mixed or diseased for consideration. The varieties in respect of which the final decision as to type was deferred until after the second test in 1925 numbered eighty-three, and the results were as follow :—discarded by growers, fifty ; identical with immune standard varieties, nine ; distinct from any known type and immune from Wart Disease twenty-two ; seedlings resembling, but inferior to, immune standard varieties, two. Five varieties were grown in 1925 with a view to registration, but only one, Arran Consul, raised by Mr. Donald McKilvie, Lamlash, was successful. It is reported to be a very satisfactory cropper, and to possess a marked capacity for resistance to blight, and the standing committee of management has endorsed the recommendation. The following is the official description of Arran Consul :—Tuber, round to oblong ; skin white, flesh white ; eyes shallow, sometimes deep in large tubers ; sprouts, pink ; haulm, tall, upright, very open ; stems, branching ; wings, broad ; leaf, markedly open ; leaflets, medium green, dull, narrow ; stalks, long ; secondary leaflets very inconspicuous ; flowers, white, infrequent ; maturity, early maincrop.

Dr. G. Claridge Druce.—At the celebration of its jubilee, held recently, the Société Botanique de Genève appointed Dr. Claridge Druce a corresponding member. Dr. Druce has also been chosen as correspondent by the Council of the National Museum of Wales. He has prepared the Botany of Huntingdonshire for the "Victoria County History of Huntingdonshire," and also dealt with the botany of Berkshire, Buckingham, Oxford and Northampton, for the "History" of these counties.

Appointments for the Ensuing Week.—Sunday, January 3 : Wakefield and North of England Tulip Society's meeting. Monday, January 4 : Romsey and District Gardeners' Association's meeting. Tuesday, January 5 : Royal Caledonian Horticultural Society's meeting. Wednesday, January 6 : Abingdon Horticultural Society's meeting. Thursday, January 7 : Manchester and North of England Orchid Society's meeting. Friday, January 8 : Royal Horticultural Society of Ireland Council meets ; Accrington and District Chrysanthemum Society's meeting.

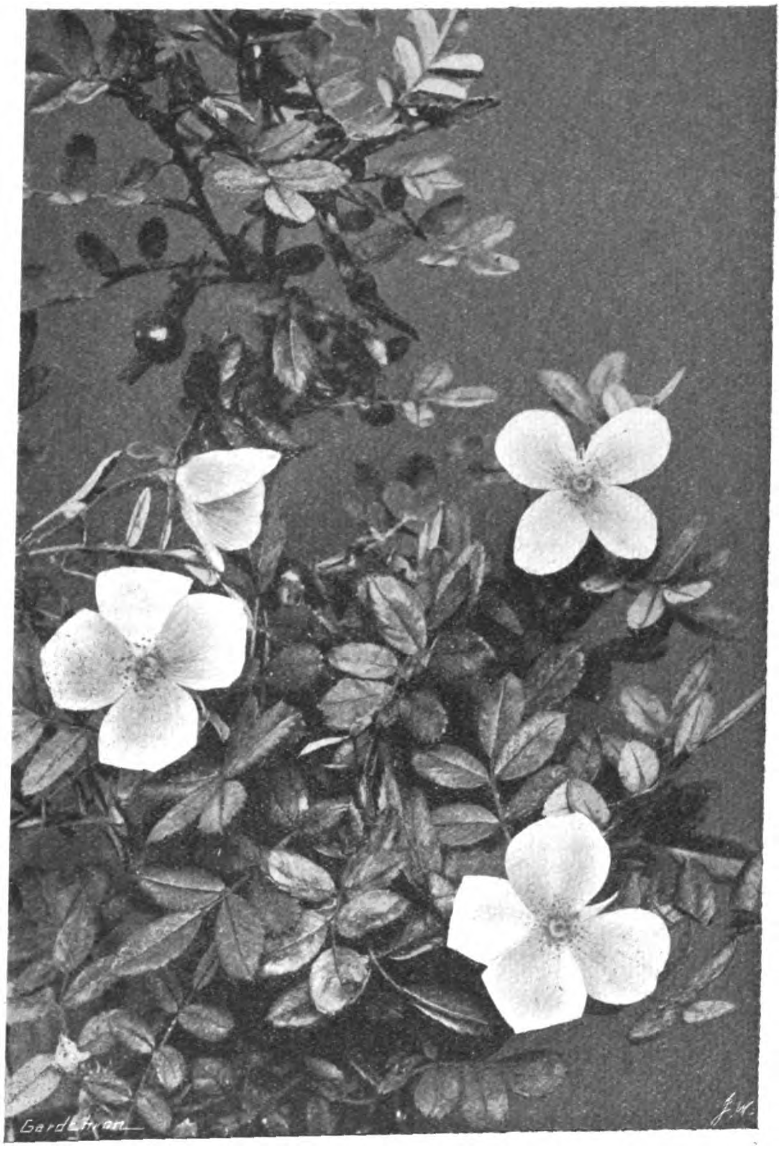

FIG. 1.—ROSA SERICEA.

(see p. 7).

"Gardeners' Chronicle" Seventy-five Years Ago.—*Chinese Azaleas and Azalea Gardens.*—Little more than an hour's walk brought me to the garden I had come to visit. There were no external marks, such as name or signboard, to direct the stranger to the garden ; indeed, a person unacquainted with the customs of the Chinese would never have dreamed of finding such a beautiful place as this is, in a poor country village. Going up a narrow passage between two houses I reached the residence of the nurseryman. He received me with great politeness, asked me to sit down in his house, and called to one of his sons to bring me a cup of tea. Having sipped the favourite beverage, I then walked out with him to inspect his garden. In the front of the house where we had been sitting, three or four flat stages were covered with Japanese plants, of which the old man had a good collection. A small species of Pinus was much prized, and when dwarfed in the manner of the Chinese, fetched a very high price ; it is generally grafted on a variety of the Stone Pine. The Azalea obtusa, and some varieties of it with semi-double flowers, were in full flower, and highly prized by the Chinese. The colour of this species is much more brilliant and dazzling in China than I have ever seen it in England. A beautiful variety, quite new, had small, semi-double pink flowers, which it produced in great profusion. This will be a great favourite in England when introduced to our gardens. Its novel colour, small leaves, and neat habit will render it most desirable for bouquets and other decorative purposes. I have named it Azalea amoena. On the stage with this plant I observed a new species of Holly, which is likely to be of some value to English gardens. I have named this species Ilex Reevesiana, and thus describe it :—a dwarf shrub ; leaves entire, elliptical, acute, slightly wavy ; dull green, and covered over with small dots, somewhat like Elaeagnus ; flowers on short spikes, terminal : fruit large, of a deep red colour. A very ornamental bush, which flowers in the winter months, and ripens its fruit during the following autumn like our common English Holly. It is the Wang-sang-qui-wha of the Chinese, and said to have been brought from Wang-San, a celebrated mountain in Hwny-chow. *Robert Fortune, Gard. Chron., January* 4, 1851.

The Week's Work.

THE ORCHID HOUSES.

By J. COLLIER, Gardener to SIR JEREMIAH COLMAN, Bart., Gatton Park, Reigate.

Seasonable Remarks.—If the general cleansing of the houses and their occupants has not already been done it should be completed as quickly as possible. The wood-work and glass, both inside and out, should be thoroughly washed. The plants should be examined for the presence of insect pests. The leaves and pseudo-bulbs of a number of Orchids are fully matured, and cleansing operations may be carried out with little risk of injury to the plants. One of the worst insect pests of Orchids is a soft white scale that conceals itself under the outer sheath of the pseudo-bulb and on the rhizomes. The members of the Cattleya family are particularly subject to injury by this insect. Their destruction and removal may be accomplished by the aid of a suitable insecticide. When a number of plants require cleansing, place sufficient insecticide, mixed with tepid water to the desired strength, in a utensil sufficiently large to permit of the plant being immersed head downwards in the specific, well wetting the leaves and pseudo-bulbs. After withdrawing the plant hold it over the receptacle for a few moments to drain, then place it on its side for a short time, after which the plant should be examined and sprayed. If the insects cannot be removed with the sponge, a pointed stick or a stiff brush may be employed for the purpose, always taking care not to damage the buds. The grower who keeps his stock clean starts with a great advantage over those whose plants are infested with pests and diseases, and therefore every effort should be made to eradicate pests of all kinds directly they are detected.

Temperatures.—Orchids, as a general rule, are very sensitive to fluctuations in the temperature, and they cannot long continue in good health unless suitable surroundings are maintained. The weather at this period of the year is apt to change quickly, which often makes it difficult to maintain the desired temperatures in the various divisions. The following readings should be maintained as nearly as circumstances will permit. Odontoglossum or cool house, 50° to 52° at night, 55° during the middle of the day, but with sun-heat it may be allowed to rise to 60°; Cattleya house, 60° at night to 65° by day, or a few degrees higher with sun-heat; East Indian or warm house, 65° at night and 75° during the middle of the day. A moist atmosphere should be created by damping the floors and stages at least once daily, but in this respect the grower should be guided by the amount of fire-heat employed to maintain the requisite degree of warmth. The temperatures I have given should be in accordance, more or less, with the weather. When it is extremely cold a degree or two below the figures given will cause less harm to the plants than the use of excessive fire-heat, while the use of the lath blinds or some other covering material at night will greatly economise the warmth during frosty or windy weather, but the protection on the roof should always be removed as early as possible in the following morning.

FRUITS UNDER GLASS.

By T. PATEMAN, Gardener to SIR CHARLES NALL-CAIN, Brocket Hall, Hertfordshire.

Cucumbers.—In order to ensure a constant supply of Cucumbers during the next two months great care and attention are necessary in watering and feeding the plants. To be successful at this season of the year the plants should be trained thinly and cropped lightly, for if they receive a check through over cropping successional fruits will not be forthcoming. Top-dress the roots on frequent occasions with a light, rich compost warmed to the temperature of the house, and maintain a night temperature of 65°. Promote a moderately moist atmosphere by damping the beds and paths, but the grower should be guided in this matter by the condition of the weather. Sow seeds to obtain plants for a succession.

Melons.—If it is desired to have ripe Melons in May the present is a suitable time to sow seeds to obtain the necessary plants. With the turn of the year the seeds of Melons will be found to germinate more readily than those sown during December, and moreover, the plants will grow more freely and sturdier than those raised at an earlier date. It is not advisable to attempt to grow early Melons unless the grower has plenty of heat at his command, for once the young plants receive a check caused by a low temperature during the early months of the year, they invariably finish their crop unsatisfactorily. The seeds should be sown in small receptacles filled with a light compost, and the soil should not be pressed too firmly. Place two or three seeds near the sides of the pot or pan and cover them lightly with soil. Plunge the pots in a brisk bottom-heat and cover them with a sheet of glass. If the compost is in a moist condition watering will not be necessary until germination takes place, when the seedlings should be placed on a shelf near the roof-glass in a house having a minimum temperature of 65°.

THE KITCHEN GARDEN.

By F. STREETER, Gardener to MAJOR ALBERT PAM, Wormley Bury, Broxbourne.

Introductory Remarks.—The superior cultivation of vegetables and salads should be regarded as of the utmost importance in all gardens. To procure the required daily supplies calls for much forethought on the part of the gardener. Deep cultivation is absolutely essential so that the first attention should be given to bringing the whole of the kitchen garden into first-class condition by trenching the ground, adding plenty of good farmyard manure, leaf-mould, burnt earth, road scrapings free from oil, etc. Where the existing soil is deficient in lime, a good dressing of this material should be applied. See that plenty of finely-sifted soil, burnt earth, wood ash, etc., is prepared and stored in a dry shed ready for the fast approaching seed-sowing season. Have also plenty of sound boxes and pots of various sizes ready for use. The pots should be washed, or if new, soaked thoroughly before using them. Clean crocks broken into suitable sizes, and labels of various sizes should be held in readiness for use. All tools should be put in good condition, so that there will be no delay when the busy season arrives.

Seeds.—The seed catalogues are to hand, and should be carefully studied. Mark off the required items that are known to suit the particular district and order a few novelties. Post the order so soon as possible, and when the seeds are received, check them off and place them in their correct order for sowing. See that they are kept cool and perfectly dry. It is not advisable to trust to old seeds, as this may lead to a serious break in supplies. Keep a sharp watch for mice which may do great damage in the seed stores.

PLANTS UNDER GLASS.

By JOHN COUTTS, Assistant Curator, Royal Botanic Gardens, Kew.

A Retrospect.—With the beginning of the New Year it is well to pass in review successes and failures of the past year. Failure with any particular plant or class of plants is usually due to circumstances which the grower can more or less control. To take the subject of propagation, for example, success with many plants depends very largely on their being propagated at the proper time, especially when it is required to have certain plants in flower at a particular date. The grower should also consider carefully what plants are best suited to the requirements of the individual establishment, and here the taste of the employer must be considered.

Seed Lists.—There should be no delay in going through the seed lists and placing the orders in good time, for the seedsmen deal with their orders in rotation. When ordering seeds or plants it is a good plan to try a few new subjects each year: it is interesting to grow new plants, and there is always the chance that one or more will prove acquisitions. Numbers of plants that should be more generally cultivated are easily raised from seeds. Tuberous-rooted Begonias are usually raised from seeds but the fibrous-rooted section, as represented by the many fine varieties of Begonia semperflorens, are very much neglected for conservatory and greenhouse decoration. They are largely used for summer bedding schemes in the south, but in the north and colder parts of the country they should be more generally grown for conservatory decoration. Plants raised from seeds sown during January will provide a display, during the summer, while a March sowing will furnish plants for flowering in autumn and winter.

Annuals.—Annuals play an important part in conservatory and greenhouse decoration, and are usually sown during September, but where this has been neglected, good results may be obtained by sowing during the present month; indeed, in the immediate neighbourhood of London, better results are obtained by deferring the sowing until the beginning of the year, as fogs and lack of sunshine make it very difficult to carry young seedlings of this type safely through the winter. Clarkia, Mignonette, Schizanthus, Rhodanthe, Acroclinium, Alonsoa, Collinsia bicolor and Nemesia, in fact, all the kinds usually grown for this purpose may be sown during January. Plants raised from seeds sown last September and wintered in small pots should now be ready for transference to larger pots, which will vary in size according to the subjects and the purpose for which they are required.

House Cleansing.—Cleanliness in plant houses is of prime importance, and it is wise to get as much house-washing done as possible before the season is too far advanced. The glass and wall surfaces should be scrubbed and the walls lime-washed, adding a litle cement to the wash to make it adhere better; a forty-eight-sized potful of flowers of sulphur should also be added to each bucketful. Propagating cases should be also overhauled and cleansed, substituting old plunging material with new where required.

THE FLOWER GARDEN.

By F. C. Puddle, Gardener to Lord Aberconway, Bodnant, Taly-Cafn, North Wales.

Trees and Shrubs.—Owing to the severe weather experienced during the past two months, the majority of gardeners will commence the year with planting operations much in arrears. Where beds have been trenched in preparation for planting, nothing can be done until the ground is in a fit condition, but where it is intended to plant in grass or woodland, the work may be proceeded with in fine weather. It is not advisable to dig the holes before the day of planting, and dry soil should be used around the roots, but if dry soil is not available, a mixture of leaf-mould and sand will be helpful. When small shrubs of doubtful hardiness are received from the nurseries it is advisable to pot them and place them in frames until April, when they may be planted out with greater safety.

Viburnum fragrans.—This winter-flowering, Chinese shrub of comparatively recent introduction has amply proved its hardiness, and is worthy of extensive planting. At Bodnant it usually commences to flower towards the end of October and continues until February. It has been flowering freely during the recent severe weather, and with the exception of a slight browning of the fully-expanded flowers when 15° of frost was registered, it appears unaffected by any climatic conditions, no matter how bad. That a deciduous shrub should flower continuously for over three months, and that at mid-winter, seems almost an impossibility, but in the case of Viburnum fragrans it is a reality. The sweet-scented flowers are white, slightly tinged with pink; they are borne in clusters on short, twiggy branches, and at the extreme end of the current season's growth. It is a good, upright growing shrub having none of the weaknesses of V. Carlesii, and may be easily propagated by cuttings, which should be inserted about July. Hamamelis mollis, another Chinese introduction will have opened its flowers ere these notes are in print. A mixed planting of this and Viburnum fragrans, with a dark background, such as would be obtained by Hollies or Yews, would provide a winter scene of great beauty, the delightful fragrance of the flowers being an additional attraction. If an edging or groundwork is needed for the group, this may be furnished by planting either Erica carnea or E. darleyensis.

HARDY FRUIT GARDEN.

By W. Auton, Gardener to Viscount Elveden, Pyrford Court, Woking, Surrey.

Peaches and Nectarines.—There are few more profitable fruits for growing on a warm south wall than Peaches and Nectarines, and although the possibilities of growing these delicacies as bush trees is not generally realised, most gardens of any pretentions have their Peach wall. As a matter of routine work the growths will probably have been cut from the wires and tied in loose bundles. This facilitates a thorough cleansing of the wall, and also helps to keep the buds dormant, as if the growths are close to the wall periods of bright weather have the effect of inciting the fruit buds to swell prematurely under the exceptionally favourable conditions which the wall provides. If the cleansing of the trees has not already been done, this should now be undertaken and the branches thoroughly cleansed before again tying them into position. The summer disbudding of Peach trees constitutes in effect their pruning, and if the old wood was removed immediately after the gathering of the crop little remains to be done in this direction now, but crowding should be guarded against rigidly, and any shoot which has not ample room for development removed entirely. In a general way, no shortening of the shoots is necessary, but where this is practised to preserve the balance of the tree shorten to triple buds. When the overhead work is completed as much of the surface soil should be removed as is practicable, and good turfy loam mixed with plenty of lime rubble and a little bone-meal substituted. The surface may then be mulched with decayed manure.

Vines.—It is preferable to prune Grape vines in the open so soon as the leaf falls, and if not already completed the work should be done forthwith. If the pruning of vines is too long deferred bleeding is bound to be profuse when the sap rises, and consequently a waste of vital force results. If pruning is done on the spur system, one bud or at most two is sufficient to leave at the base of each shoot, and if wood for extension is needed the young growths should be carefully trained in at about eighteen inches apart.

Bush Fruits.—Whereas Red Currants and White Currants produce their fruits from spurs developed on the wood of earlier years, Black Currants fruit on the previous year's growths, hence the methods of pruning differ fundamentally. There is no better system of pruning Black Currants than that of removing all the old wood not wanted, immediately after the crop is cleared, and although this is frequently impracticable in field culture because of the labour involved, it is usually possible in private gardens. A bush of Red Currant or of White Currant should consist of a number of main stems radiating from the base, on which all side shoots should be cut back to cause fruiting spurs to develop on the whole of their length. This also is better effected by summer pruning, which leaves little to be removed in the winter. Gooseberries fruit on the previous year's growth as well as from spurs on older wood, and their pruning consists largely in thinning the branches so that the picking of the fruit can be done comfortably. In districts where birds are very destructive it is wise to defer pruning until the buds are beginning to burst.

Preparations for Planting.—Whilst arrears of planting cannot advisably be undertaken until another month or so, it is well to make full preparations for doing this work. So soon as the soil becomes reasonably dry and workable ground intended for the planting of fruit trees should be trenched or dug, according to circumstances. Where the subsoil is of a cold, retentive nature, deep digging is to be preferred for fruit trees to trenching, for it is not desirable that the roots should grow into an unkindly medium; rather should they be encouraged to develop near to the surface where they will be warmer and receive plenty of air. Where fruit borders are known to be insufficiently drained, this defect should be remedied, even if the border has to be renewed.

FOR NORTHERN GARDENERS.

By A. T. Harrison, Gardener to the Marquis of Ailsa, Culzean Castle, Maybole, Ayrshire.

Arrears of Work.—With the advent of the New Year, all arrears of work from whatever cause should now be resolutely completed. All vacant ground in the kitchen garden should be worked deeply and the surface left in a rough condition to benefit by exposure to the weather. The pruning of bush and standard fruit trees should be done during mild weather, and when inclement weather prevails advantage should be taken of it to wash and cleanse both plant and fruit houses.

Preparations for Seed Sowing.—It is a good plan to have a quantity of soil brought under cover in good time in order that it may be available when required; sufficient quantities of leaf-mould and sand should also be at hand, while seed-boxes, pots and pans should all be looked over and washed, if necessary. If large Onions, either for home use or exhibition are required, the present is a suitable time to sow the seeds in boxes, covering them at least a quarter-of-an-inch deep with finely sifted soil. Germinate the seeds in a house with a night temperature of 50° to 55°.

Propagating.—This is also an ideal time for propagating stocks of Chrysanthemums, perpetual Carnations, etc. Although the bulk of cuttings of the former plants are inserted in November and December, there are always some varieties that are shy in forming shoots suitable for use for cuttings, and these should be dealt with as they become available. In the case of perpetual Carnations, while these may be propagated from October till March; cuttings inserted the first week of the year and grown steadily on always make good plants, and are ready for cooler quarters before the space in the propagating house is required for other subjects.

Hot-beds.—The present is a suitable time to collect the dung and leaves for making hot-beds, and turn them over once or twice to become thoroughly mixed. The beds should be made at least three feet wider than the portable frames used for them, and from three to four feet in height. Crops of early vegetables may be economically forwarded by these means, and the heap comes in useful for growing Vegetable Marrows during the summer, and later forms a part solution of the question of animal manures for the kitchen garden, as by the time digging begins next autumn and winter, the leaves and dung are in a suitably decomposed condition to be used for this purpose.

INDOOR PLANTS.

NAEGELIA.

THIS beautiful genus is included in the Natural Order Gesneraceæ, and comprises some six species, most of which have at some time or another been included among the Gesneras. They are natives of Mexico and Central America, and are generally regarded as stove plants, although they succeed quite well in an intermediate temperature, and, when in flower, in a warm greenhouse.

N. cinnabarina (syn. Gesnera cinnabarina, *Bot. Mag.*, t. 5,036) is a beautiful winter-flowering species, the flowers scarlet with a light throat, while the cordate, green leaves are beautifully shaded with flame-coloured hairs. Naegelia zebrina (syn. Gesnera zebrina, *Bot. Mag.*, t. 3,940) flowers throughout the autumn and winter, and has bright, orange-scarlet flowers, with bars of deeper colour down the side of the tube. A batch of this species has been in flower for over two months in the conservatory at Kew, thus proving its value for autumn and winter flowering, especially considering the adverse atmospheric conditions that obtain here during the winter season, when one night's fog often ruins the work of the previous six or nine months.

N. multiflora (syn. N. amabilis, *Bot Mag.*, t. 5083) has white or creamy-white flowers, and has no doubt played an important part in the production of the present-day garden race of Naegelias. I doubt whether this species is in cultivation to-day, and the same may be said of N. fulgida and N. Geroltiana (syn. Gesnera Geroltiana).

At the present day, the genus is generally represented in gardens by hybrid varieties (see Supplementary Plate), or, perhaps more correctly, by garden forms raised from seeds. At one time there were many named varieties, but at the present day, with the exception of the fine variety known as Orange King (finely shown by Mr. Howard Palmer, Northland, Wokingham, at the R.H.S. Hall, on October 20, 1925), there seems to be few named varieties offered for sale. This is not a serious matter as Naegelias are easily raised from seeds, and a batch of seedlings usually gives many fine colour variations, ranging from white and yellow through shades of orange to orange-scarlet. Rosy-red suffused with pink is the colour of the beautiful hybrid Walmsgate Beauty, raised at Oxford Botanic Gardens; not the least charm of this plant is its beautiful leaves, which are thickly covered with dark crimson hairs.

Any named variety, or selected seedling, is easily propagated by means of the scaly rhizomes, or by stem and leaf cuttings, the last affording a quick and ready means of increase.

Seeds may be sown during January, in pots or pans, in a light sandy compost, which is best watered a few hours previous to sowing the seeds. The latter are very small and should be carefully distributed over the surface of the soil in the seed-pan, and covered with just a sprinkling of silver sand. The pan should then be covered with a piece of glass and kept shaded until germination takes place. In a temperature of 60°, germination soon occurs, and the seed-pan should then be stood well up to the roof-glass. When fit to handle, prick the seedlings into well-drained pans filled with light, sandy compost, and when large enough, the young plants may be potted off singly into small pots, or three plants may be placed in a larger pot, afterwards potting them on as they require it. Naegelias are best flowered in five- or six-inch pots. Plants raised from seeds sown during January should flower towards the end of summer or in the autumn. During the growing season a temperature of 60° is sufficient, with plenty of atmospheric moisture.

The potting compost should consist of good fibrous loam, with the addition of some lumpy peat and enough sand to render the whole open and porous; the pots should be well-drained and the compost made only moderately firm.

When the plants have completed their growth they should be rested, by drying them off for a time; afterwards the scaly rhizomes may be started into growth according to requirements, the earlier batches to flower during the autumn, while those started later will give a good display during the winter.

Naegelias are very subject to attacks of mealy bug, which must be guarded against, for once the pest is established on the hairy leaves it is very difficult to eradicate. In common with most plants of this class, Naegelias are subject to attacks of the Begonia mite, which, however, may be prevented by the use of the sulphur vaporiser. *J. Coutts, Kew.*

ORCHID NOTES AND GLEANINGS.

LAELIA ANTOCEPS.

THE first inflorescence of this interesting new hybrid between Laelia anceps Ballantineana and L. autumnalis is sent by the raisers, Messrs. Sanders, St. Albans.

It is a valuable addition to winter-flowering Orchids, and intermediate between the parents, though in form and tint it more nearly approaches a large L. autumnalis. The tall, two-flowered spike has flowers with white sepals and petals tinged with pale mauve, the base of the lip being similarly coloured, and the showy ovate-oblong front lobe is bright rose-purple, the basal part around the keeled crest being white. Some purple lines, as in L. anceps, appear on the inside of the base of the lip.

It is interesting to compare this hybrid with L. Finckeniana (albida × anceps), a natural hybrid certificated in 1892, as the differences in the present hybrid proves the correctness of the suggested parentage of L. Finckeniana, which was illustrated in *Gard. Chron.*, December 30, 1893, p. 805.

MAXILLARIA VENUSTA.

A FLOWER of this elegant and profuse flowering species, which is making a fine show in his collection, famous for the number of rare old species, is sent by J. McCartney, Esq., Hey House, Bolton.

The species was first introduced and flowered in 1851, and in the days when collections of specimen Orchids were a leading feature in exhibitions, it was one of the most effective exhibits, the late Mr. J. Cypher often showing specimens of it with sixty to eighty flowers, the acuminate sepals extending six inches.

The delicately fragrant flowers are white, the small lip in the centre being yellow with some red markings. The blooms are arranged round the plant on curved stems, ten or twelve inches in length. This Maxillaria is one of the most graceful and attractive species of the genus; it is illustrated in the *Bot. Mag.* t. 5296.

MORMODES COLOSSUS.

J. MCCARTNEY, ESQ., Hey House, Bolton, sends a strong spike of the rare Mormodes colossus, the upper half of which bears eight distantly arranged flowers, the lanceolate sepals of which extend over four inches. The sepals and petals are recurved at the margins; they are yellow, tinged with rose at the base, and have parallel lines of reddish purple from the base to the tip. The ovate-cordate lip is incurved and rolled back on the extreme half, the edges meeting at the back. The colour is bright light yellow with some small purplish spottings on the outside, and dotted lines of the same colour in the interior.

This Orchid was introduced by Warscewicz from Central America, in 1850. M. colossus is of the M. buccinator section, a species which is the most variable in the genus, but which always bears the flowers in a dense head, while the larger species of the colossus section have them loosely displayed. M. colossus is illustrated in *Bot. Mag.* t. 5840.

TREES AND SHRUBS.

AUCUBA JAPONICA MACULATA.

I FULLY expected my note (Vol. LXXVIII, p. 429) on this species to stimulate some discussion. I am pleased that it has done so. There must be a certain amount of confusion in the matter. Mr. Comber states (p. 472), that "the spotted-leaved type is female, and has been recognised as such for forty years." I wonder if the recognition has been universal. I have before me a catalogue, issued in 1909-10 by Messrs. Clibrans, in which the following occurs:—"Aucuba japonica maculata. The variegated male Aucuba, 1/-, 1/6, 2/6 and 3/6 each." "Aucuba japonica maculata; the female form of maculata, 9d., 1/-, 1/6 to 3/6." Nothing is said about the latter being variegated, and the prices lead one to believe that it in any case is not so much variegated as the former. This is in accord with my own observations.

Whenever I have examined the flowers of a variegated Spotted Laurel they have been found to be staminate. Whenever I have examined the flowers of the green form they have been pistillate. I agree with Mr. Comber that my observations may have been faulty and my teacher may have taught false doctrine. To err is human. My botanical teacher, at whose feet I sat for nine years, and whom I shall honour to my journey's end, was the late William West, F.L.S., of Bradford. Of him it was said, at a British Association meeting, that in some branches of biological knowledge he had no superior in Europe. In looking up my class notes I find it distinctly stated that the Spotted Laurel is dioecious. I, like Mr. Comber, have seen berries on both forms of the Spotted Laurel, which makes me wonder whether the species has ever been entirely dioecious, or whether it has been dioecious at one time and is not so now. I am interested in Mr. Comber's remark concerning bees. He seems to imply that they may pollinate the flowers. Personally, I have rarely seen a bee on the flower of a Spotted Laurel. Flies visit the flowers in great numbers, and they may play some part in cross fertilization. *Geo. H. Copley, N.D.H.*

ROMNEYA COULTERI.

I WAS surprised to see, on p. 428, your contributor, A. T. Johnson, referring to the propagation of Romneya Coulteri by means of suckers, because, not so very long ago, Mr. Correvon, writing in *The Gardeners' Chronicle*, stated that the most apparent difference between R. Coulteri and R. trichocalyx was the fact that the former never produced suckers, while the latter was most profuse in this respect, and threw out quantities of them, sometimes long distances away from the parent plant.

This statement agrees with my experience of R. Coulteri here, where it has been established and has grown and flowered well for over twenty years, and never once have I found any suckers straggling away from the old stools, and we have always raised young plants by means of root-cuttings.

I have no plants, to my knowledge, of R. trichocalyx to prove Mr. Correvon's statement, but, rightly or wrongly, I regard him as a good authority. I should like to know whether other growers of this Californian Poppy have found suckers on their plants, and, if so, can they definitely say which species they are growing, as I believe R. trichocalyx, being the more easily propagated, is frequently supplied instead of R. Coulteri. *A. T. Harrison.*

GARRYA ELLIPTICA.

VERY fine effects are again being produced by this winter-flowering shrub, its innumerable grey-green catkins hanging in clusters. Where this evergreen does well it is most attractive in December. It withstands the sea-breezes well, and several plants growing on the top of the cliffs, sheltered only by a low wall, have now overtopped the wall, and are forming round-headed bushes from six to ten feet tall each one covered with a full crop of its interesting, if not particularly showy, catkins. These catkins have been copied, I am told, by those artists of a past generation who were responsible for the interior decorations in many of the mansions in this country, and, although not familiar with this aspect of the subject, I believe that fairly exact reproductions may be found in many of those mansions accredited to the brothers Adam, or belonging to that period.

The hybrid, G. Thuretii, although interesting as a vigorous-growing evergreen, does not flower until June, and is not to be compared with G. elliptica, the catkins being very much smaller and somewhat inconspicuous. *A. T. Harrison.*

ROSE GARDEN.

ROSA SERICEA.

THE silky-leaved Rose—Rosa sericea—was first discovered by Wallich at Gossan Than, in the Himalayas, but it is a species distributed widely throughout northern India, Upper Burma and Central China. It is variable, indeed, some authorities consider that certain forms belonging to the sericea group deserve specific rank.

Rose sericea (Fig. 1, p. 3), forms a spreading bush, so much as ten feet or twelve feet tall; it has arching growths, abundant foliage, and creamy-white, four-petalled flowers, which may be one-and-a-half inch to two inches across. The flowers are followed by red, somewhat Pear-shaped fruits. R. sericea is also interesting as being one of the earliest of Roses to bloom. The species was illustrated in *The Botanical Magazine* (t. 5,200), in 1860, where the information is given that it was "introduced by Dr. Hooker and Mr. Strachey into our gardens, where it proves hardy, and is best treated by nailing against a wall. Thus situated, its blooms are abundant in earlier summer."

Although the species is not extensively cultivated for garden decoration, the variety pteracantha has found considerable favour by reason of the attractiveness of the stems, which, when young, are covered with vivid red, translucent spines. These spines may be so much as one-and-a-half inch wide at the base, thin, and sharply pointed—effective alike in colour and armature. In this variety however, the flowers are smaller than in the type. R. sericea var. pteracantha was first raised at Les Barres, in France; it is a native of Western China, but a very similar form has been found in Manipur.

NOTES FROM WISLEY.

AT this time of year few plants have yet begun to flower in the alpine house. This does not mean, however, that such a house lacks interest. On the contrary, many alpine subjects are as fascinating in habit and foliage at the present season as they are when in bloom.

Among the many attractive plants with rosettes of leaves growing in the alpine house, those of Saxifraga Griesbachii and of the narrow-leaved S. Biasolettii are particularly handsome. The under-surface of the leaves of some forms of the first-named plant are tinged with purple, a feature which is still more pronounced in the case of other plants, such as Oxalis violacea and Lewisia Cotyledon. It occurs also in the mauve-flowered Wulfenia Amherstiana, which has just finished blooming on the rock garden.

Another plant with beautiful foliage to be found in the alpine house is a species of Potentilla, which is covered with long, silken hairs. These are most abundant on the underside of the leaves and on the stems. Fine, silvery-grey carpets are formed by Saxifraga Rocheliana and Raoulia australis, which looks particularly attractive when the sun is on it, while the crinkled leaves of Ajuga reptans metallica crispa have a steely-blue sheen. This is even more obvious in plants grown in the open.

In the field garden, most of the deciduous trees and shrubs have by now lost their foliage, with a few exceptions, such as Quercus coccinea, which still retains many of its red leaves, but much of the colour to be seen a month or so ago has gone. Around the large pond, however, many plants with brightly coloured stems are now conspicuous. Foremost among these is a specimen of Salix alba pendula aurea, the long, arching shoots of which are bright yellow. A red-stemmed Willow is to be seen in Salix coccinea, while a silvery sheen covers the stems of Salix pruinosa. The latter is still more attractive when the flower buds start to expand.

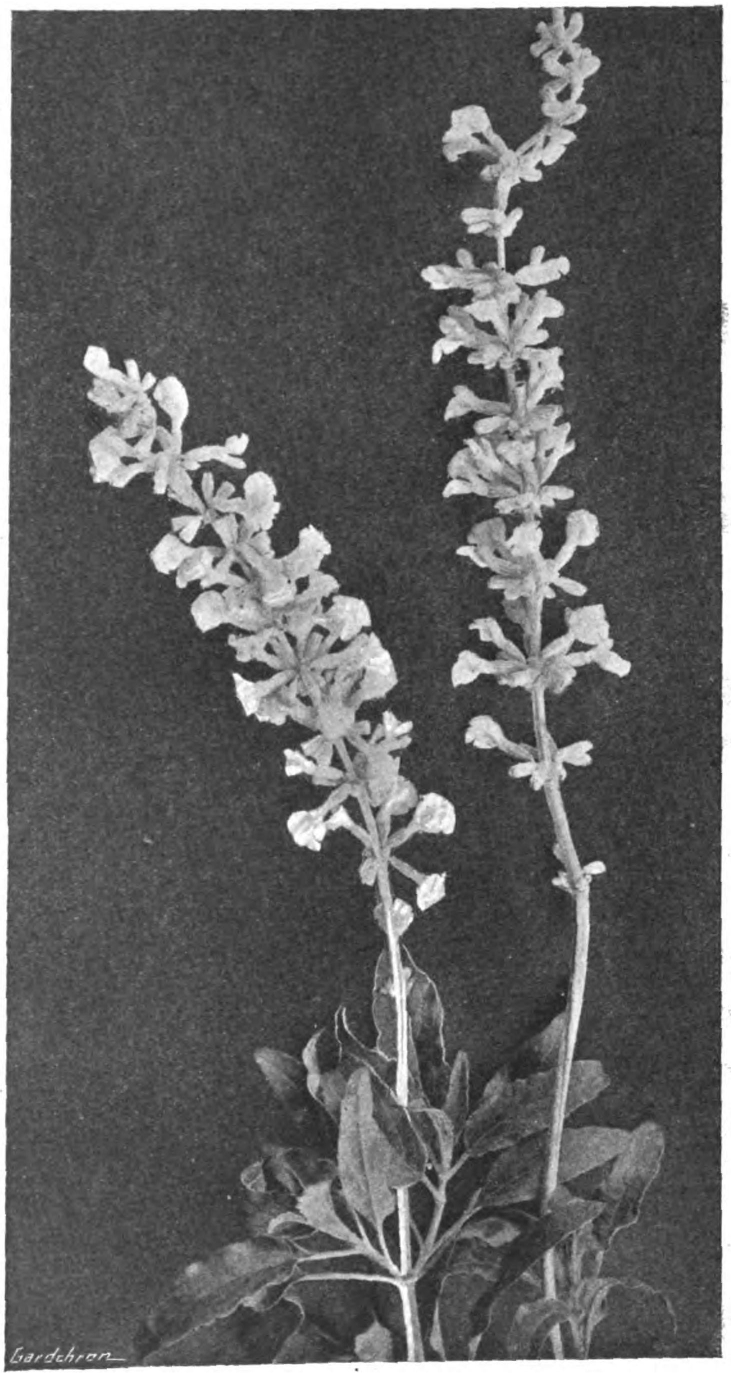

FIG. 2.—SALVIA FARINACEA.

In addition to Willows, plantations of Cornus, such as C. sanguinea and the darker-stemmed C. atrosanguinea, make bright splashes of colour, and the young shoots of Berberis yunnanensis which have nearly shed their leaves, now show up a brilliant red. Mention must also be made of a group of Sea Buckthorn, Hippophaë rhamnoides, whose silver stems are no less effective.

Marked improvement is already noticeable as a result of alterations which are being carried out in this part of the gardens. The old, Ivy-covered Oak tree at the entrance to the field garden has been removed, and a collection of flowering Cherry trees planted. A start has also been made on the work of developing the ground which adjoins the river. Hitherto, very little has been done in connection with this part of the gardens, which probably offers more scope for the production of fine garden pictures than any other portion.

Among plants under glass, the Carnation trial affords a continuous display of bloom, while Lachenalia pendula superba is flowering among other plants of this genus which are on trial. Several varieties of Nerine also are in bloom, including Nerine Bowdenii gigantea, N. flexuosa alba, and the vivid pink N. Mansellii.

In one of the propagating pits, the mealy-stemmed Salvia farinacea (Fig. 2), has been flowering well in company with Asclepias curassavica, which bears yellow and orange flowers.

Entomological investigations which are carried out by Mr. G. Fox-Wilson, have resulted in the discovery of a species of mealy bug which attacks the roots of Dianthus plumarius. It has now been named Ripersia dianthi. *J. E. G. White.*

NOTES FROM EDINBURGH.

DURING part of November and December Edinburgh experienced a great deal of frost and some fog, the effects of both have been felt by plant life. The premature ending of the display of Columnea gloriosa superba, and of certain Orchids, especially Laelias, is ascribed to fog. The effects of frost have been felt by Rhododendrons and some other evergreens but it is not yet possible to say how much real damage has been done.

Nothing of great interest is flowering out-of-doors, and one must look to the greenhouses for any effective colour. One of the brightest displays is made by Monochaetum alpestre, a shrubby plant which is trained up a wall in the corridor. It is a member of the Melastomacea, a family which contains several valuable genera of garden plants. The flowers are pink, and when the plant is trained in the manner mentioned, a very fine display may be made. Acacias become very valuable at this season of the year, either when grown in beds or in pots. Particularly noticeable just now are Acacia acinacea, a handsome plant, of graceful habit, producing a quantity of fine yellow flowers, and A. linearis, which, although not so showy as the former, has a graceful habit. Its flowers are pale yellow and much smaller than those of A. acinacea. A richer tint is assumed by the flowers of A. rostellifera, which is valuable also for its greyish-coloured phyllodes.

A very interesting member of the Scrophularineae is the shrubby Dermatobotrys Saundersii. The flowers are tubular, pink, and produced in whorls on the young wood. The species is a native of Natal, and is figured in *Bot. Mag.*, t. 7,369. The plant is inclined to be "leggy" and in a state of nature it may grow on the ground or be epiphytic, on trees, indeed the description accompanying the *Bot. Mag.* figure records it as "growing normally on trees."

The family Ternstroemiaceae furnishes us with an interesting plant at this season of the year. This is Eurya symplocina, a native of the Himalaya. It is scarcely an ornamental plant, the flowers being practically inconspicuous. They are small and white, or greenish-white, and carried in clusters sessile on the branches. They are found on the old wood, not on the shoots of the current season's growth.

An attractive bulbous plant in flower is Haemanthus albiflos. This species is of dwarf habit, with handsome, broad, dark green leaves, which show off the pure white of the perianth and the golden stamens to perfection. In Peristrophe speciosa we have a much-prized representative of the Acanthaceae. It is treasured either as a pot plant for decoration or for planting out in greenhouse borders, and its pink flowers are welcome at this time of year. Another valuable plant for pot culture and which may be had in flower at this season, is Tibouchina semidecandra. This species, sometimes known as Lasiandra macrantha, is a native of Brazil. T. semidecandra is almost as attractive for its foliage as for the fine purple flowers, which are its crowning glory. A very fine effect may be produced by training this plant up a pillar, as is done at Edinburgh, where its fine flowers may be seen over a lengthy period.

In the stoves, a very fine display is made of the red fruits of Pleuropetalum costaricense. The fruits are produced terminally, in great clusters, and contain a large quantity of small, black seeds. The Melastomaceae once again furnishes us with an attractive flowering plant in Centradenia floribunda, a species of compact habit, with purplish leaves, and pale, pinkish-mauve flowers. This is a valuable plant for pot culture. Another plant, useful for the same purpose, is Coleus thrysoideus, which produces spikes of pale blue flowers.

Foliage plants, of course, are valuable at this season, also Begonias of the Gloire de Lorraine type, besides Euphorbia (or Poinsettia) pulcherrima, which, according to D. T. Fish, was introduced into cultivation through the medium of the Royal Botanic Garden, Edinburgh.

In the Erica house, Epacris Model is flowering, and is a plant of upright growth, reaching a height of about two-and-a-half feet. The slender growths carry a profusion of pink flowers, which give the plant quite a distinctive appearance. It contrasts with the more prostrate habit of Epacris Eclipse, the flowers of which are red and white.

Before drawing these notes to a conclusion attention may be directed to a plant now in flower out-of-doors. This is Arctostaphylos Manzanita, a native of California, but it grows outside all the year round in Edinburgh, although not in a part of the garden open to the public. It enjoys some slight protection from the force of the winds, and is at present upwards of six feet in height. It is evergreen, the leaves being dark green and tough. The flowers are white, very faintly flushed with pink. This plant is usually at its best about the first of January, and is admired by all who see it. *Robert H. Jeffers.*

MR. F. KINGDON WARD'S EIGHTH EXPEDITION IN ASIA.*

XXIII.—IN POME.

THE junction of the two big rivers was a milder affair than we had expected, though there is doubtless more turmoil when both are in flood: for the summer rise here is about forty feet. The Tsangpo rushes down at a fine pace, and the Po-Tsangpo, also flowing in a gorge, hits up against it with considerable force, but at a rather acute angle. Both gorges are, on the whole, well-timbered, though the smooth, vertical cliffs are often necessarily bare. Above the waters, on either side, are terraces, with cultivation and villages. It is above 8,000 feet that the most extensive forests and the biggest trees are found; between 8,000 feet and 11,000 feet, the southern slopes of the eastern Himalaya are covered with a heavy pall of mixed forest. Above this comes the alpine zone. Although in the region of the gorge we never quite reached the alpine zone, it begins at no great height, the Abies forest ceasing abruptly at about 11,000 feet. This was what we found even at the Doshong La, where the main Himalayan range is so low that the monsoon rains sweep right over it with scarcely a check. The enormous volume of snow which falls in the eastern Himalaya is largely responsible for the depressed snow line and consequent low alpine region. In fact, at the Doshong La, we found all the best alpine plants between 11,000 and 12,000 feet, while several dwarf Rhododendrons crept down even lower. Their endless variety I have already stressed.

North of the Tsangpo and west of the great gorge, the variety is infinitely less; there are few dwarf Rhododendrons—not more than five or six species in fact, and those of the 'Lapponicum' type predominate. And yet the summer climate here differs in no respect from that of the Himalaya range proper, south of the river: that is to say, it rains almost without ceasing—more it cannot do. It is otherwise with the conditions in winter. In any speculation as to the reason for this bewildering multiplication of forms, therefore, account must be taken of the great accumulation of snow, which buries the alpine flora beyond recall, for at least seven months in the year; since where do we not find this snow, neither do we find so great a variety of flowers—at all events, of Rhododendron. In England, we must necessarily work our Rhododendrons overtime—nine or ten months a year instead of five. North of the river, but east of the gorge, however, we find these conditions to some extent repeated, and here, indeed, we find an alpine flora related to that of the Doshong La; for I found on the southern flank of the great snowy range which appears to be the Salween divide, a 'Campylogynum,' a 'Saluenense,' and a 'Sanguineum' Rhododendron, besides that missing link between the Himalayan and Chinese Primulas, a purple-flowered 'Sikkimensis.' It is therefore in this direction that one can most profitably follow the trail of the Sino-Himalayan flora. The mountain ranges present here a bridge between Pome and Burma, and, at the same time, act as a barrier between the Indo-Malayan flora to the south, and the steppe flora of Tibet to the north.

The Indo-Malayan flora penetrates far up the gorge of the Tsangpo, but does not cross the main axis of the Himalaya. It must be remembered that at the confluence we were not more than 5,000 feet above sea level, and in a sheltered gorge; incidentally, the lowest point we had reached for many months. Even in December it was almost uncomfortably hot in the daytime, making a penance of climbing; hardly surprising was it, therefore, to find ourselves in the midst of sub-tropical vegetation. We saw no Palm, save the Rattan, but there were half-a-dozen species of Bamboo, including a climber. A species of wild Banana grew to an impressive size; the stems were forty feet to fifty feet high, thirty-nine inches in circumference near the base, bearing leaves sometimes ten feet long and three feet wide. There was a grove of such giant Plantains on a steep, boggy-forested slope, just above the confluence, and the native hunters who accompanied us amused themselves by slashing across the stems with their knives, in order to hear the leaves tearing like brown paper as the unwieldy vegetables fell.

A small, creeping Ficus covered many of the tree trunks like Ivy: another species formed bushes on rocks, or in the boles of trees; a third and that in fruit, attained the dimensions of a small tree.

On the edge of the forest we saw some gigantic Thistles, eighteen to twenty-four feet high, with quite small heads of flowers, and a Codonopsis with bright purple fruits. Inside the forest the ground was often sprinkled with the gaping, scarlet capsules of a Curcuma, bristling with rows of white seeds, like milk teeth. I have already referred to a small, tree Viburnum, with large bunches of red berries; these the natives eat, but they are distinctly bitter raw, and would probably be better cooked. A species of Quince was occasionally seen in the villages, and the large fruit, though very hard, was edible, and would make excellent jam. Rice is not cultivated here, but is grown a short distance down the river. Amongst the Orchids, a large Cymbidium was fairly common, but it was only in bud; Dendrobium, Eria and Bulpophyllum were the genera most frequently met with, but none of these were in bloom either.

On December 18, we left the neighbourhood of the confluence, where we had spent over a fortnight botanising and searching for the more or less mythical falls, and started northwards up the Po-Tsangpo to rejoin our main body at Tongkyuk. We were now on the outskirts of the mysterious province of Pome, which lies north of the Tsangpo bend, and is drained by the still unexplored Po-Tsangpo and its tributaries. But it was no use our penetrating further into that difficult country now; it would need a full season's work merely to reconnoitre those valleys and mountains, and our best plan was to get home as quickly as possible with what we had got. At some future date, perhaps!!! We were once more on a good path, so that we made better progress.

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* The previous articles by Mr. Kingdon Ward were published in our issues of April 12, May 17, June 21, August 9, August 30, September 27, November 1, 1924, April 4, May 9, June 6, June 20, July 4, July 18, August 1, August 15, September 5, September 19, October 10, October 24, November 21, December 5, and December 19, 1925.

It must be recalled that in penetrating the gorge of the Tsangpo we had passed right through the Himalaya. Hence, in order to regain the plateau, we had to cross them again, though where that crossing was to take place, we did not know. Eventually, we came to the conclusion that the Po-Tsangpo, which also flows in a gorge, likewise cuts through the main Himalayan axis; so that during the next few days, while marching up the river, we must have recrossed the Himalaya. This was more apparent from the change in the vegetation than from the physical aspect of the country. We soon reached drier regions, Pine and Juniper forest replacing the sub-tropical forests of the confluence. The disappearance of the big Tsuga, and of the big-leaved 'Grande' Rhododendron, was also significant. Ground Orchids in some variety took the place of epiphytic species, but in the deepest glens one still noticed large-leafed Araliaceae, and the prevalence of Ferns was notable. The Rhododendrons were 'Virgatum,' 'Arboreum,' 'Irroratum,' and a few others, the first-named occasionally in bloom.

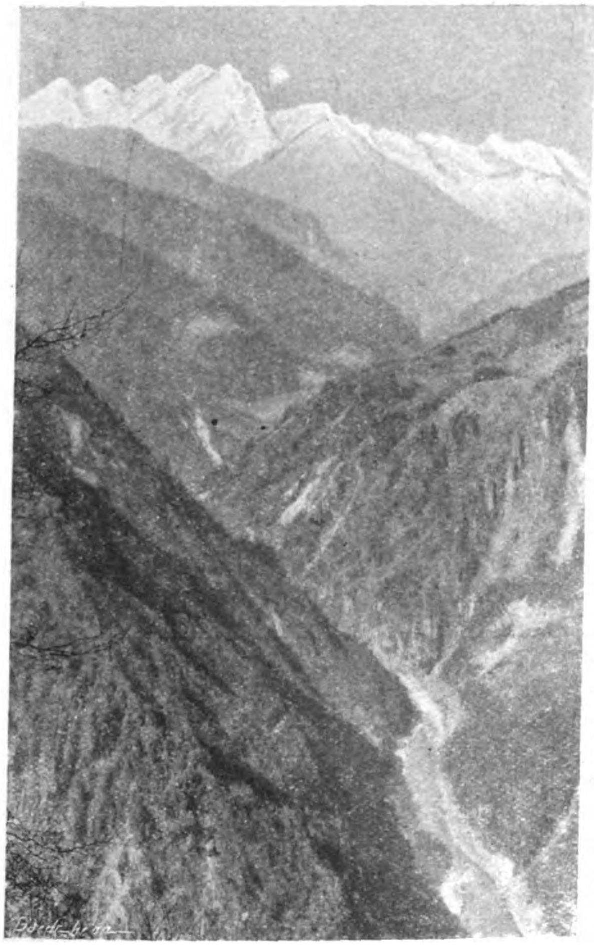

FIG. 3.—VIEW OF THE TSANGPO JUST ABOVE THE CONFLUENCE.

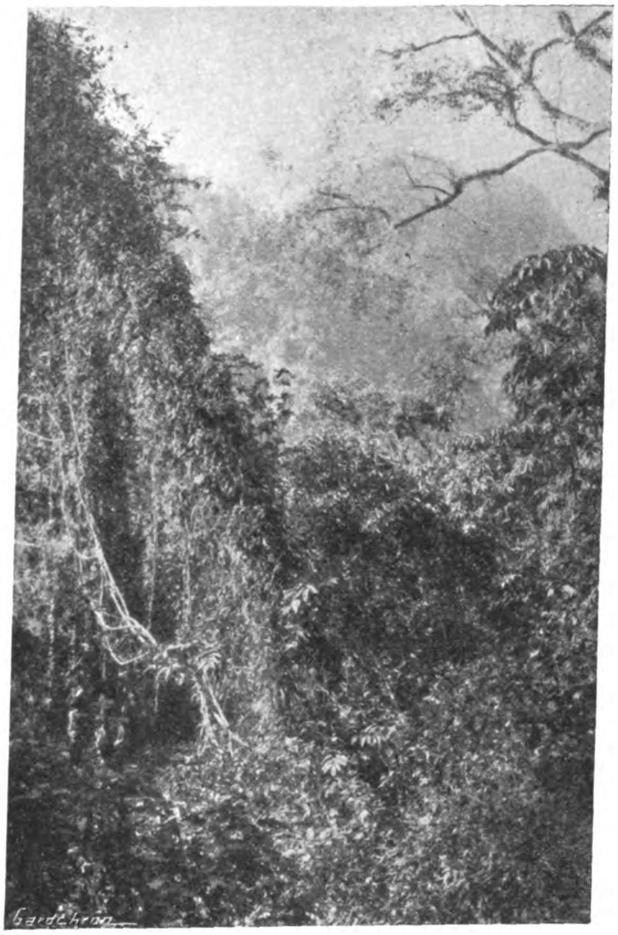

FIG. 4.—SUB-TROPICAL FOREST ALONG THE LOWER TSANGPO GORGE.

I have already referred to the big 'Martagon,' Lily of the Pine country. On the steep, grass-clad, sunny slopes above the confluence were scattered a number of Lilies, of which I collected some seeds; but if this was the pink 'Martagon,' it was, at any rate, much smaller than the Tongkyuk plant, never carrying more than three or four blooms.

Going down to Tongkyuk from the upper Rong, we had remarked a rapid change in the flora, plants of sub-tropical appearance replacing the alpine and sub-alpine species of the old glacier valleys. But ascending from below, the real sub-tropical vegetation died out even more quickly, till, after reaching the Rong confluence—nominally four days' march from the Tsangpo, but we had halted two days en route, and did not get there till December 23—we were already behind the Himalayan barrier again. In the course of this brief march we ascended only some 1,200 feet above the Tsangpo at Gompo Ne.

Much of the country, where it is not covered with Pine forest, as usual on sheltered slopes, or with mixed forest as in the deeper glens, is clothed with bush. Here you may see Deutzia, Philadelphus, Hypericum (H. Hookerianum or H. patulum), Spiraea, Salix, Eleagnus, Alnus, Buddleia, Ailanthus, Daphne, Cotoneaster, Berberis, Viburnum, etc., with a few climbing plants, as Ivy, Clematis, and a big, leathery-leafed Asclepiad. I noticed also a good deal of Mistleto, which shows a partiality for Dalbergia, and there were Violets in flower on the Ferny banks. There are two species of Buddleia, a large-leafed one found in the forest, and a smaller, flannel-leafed species growing on the sun-kissed screes. The flowers of the latter are violet, rather small, and in short, limp spikes, but the foliage is handsome. There are also two species of Berberis, one like B. nepalensis (?) with large, prickly, pinnate leaves, and slender, erect spikes of orange flowers—a plant of the mixed forest this; the other already referred to with beady, blue-black berries and clouds of gamboge flowers.

On December 23, we made a longish march, and, crossing the Po-Tsangpo by rope bridge at dusk, reached Trulung by torchlight. We were now on the main pack road between Tongkyuk and Pome. Next day we climbed a cliff and found ourselves by the Rong once more, though still below 8,000 feet altitude.

A good march on Christmas Eve brought us to a camping ground by the stream. We were still in Pine forest, but the weeping Pine of the lower valleys was now diluted with the short-needled, small-coned species, and before we reached Tongkyuk, the former was completely eliminated. We awoke on Christmas morning to find our blankets stiff with rime after 9° of frost. The sky was as clean and clear as a blue lagoon, and the sun shone brilliantly, as it had done for some days, and would continue to do till the next brief storm emptied itself over the hills. A short march brought us to a village set amidst mountains clothed with Pine and Bamboo; down by the stream every twig was encrusted with the amber beads of Hippophaë, or the coral of Cotoneaster. The Alders bore monstrous bunches of Mistleto, and on the steep rock chutes grew patches of scrub-Oak and spiny Ceratostigma, announcing that we were already beyond the regions of regular winter rain. The forest was now pure Conifer, Pinus Armandii, and a Scot's Pine on the sunnier slopes; Picea on the sheltered cliff. Only, three species of Rhododendron, the 'Virgatum,' the 'Arboreum,' and the 'Triflorum' were seen in the valley, though, of course, one would have met with plenty more higher up the slope. Thus the last vestiges of an Indo-Malayan flora quickly dwindled and disappeared.

On December 26, we covered the remaining ten miles to Tongkyuk, taking it easily, for despite the sharp frosts, it was quite hot in the middle of the day. Here we rejoined the main body, who, having heard no news of us for a fortnight, and, finding us long overdue, had almost despaired of ever seeing us again!

We now made instant preparations for the winter journey across the plateau. *F. Kingdon Ward.*

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LILIUM BROWNII.

IT is to be hoped that in their researches into the new plants of the present era, botanical and horticultural historians and investigators of the future may not be beset by the difficulties which so often face students of a genus in probing the history and synonymity of plants of bygone generations. And in view of the publicity a new plant obtains, nowadays, and the attention it receives from horticultural writers, it is hardly conceivable that all we know about plants of the present century will not be available to our children's children to the *n*th generation.

These reflections have been prompted by the failure of yet one more attempt to elucidate the history of L. Brownii at and before the time it reached this country. All we know about the Lily is that it was named after F. E. Brown, a nurseryman of Slough, who flowered the species for the first time in Britain in 1837. Miellez, another nurseryman, of Lille, to whom Brown had sent some bulbs in 1837, exhibited flowering plants of it at a flower show held by the Lille Horticultural Society in 1841, and paid Brown the compliment of coupling his name for ever with the Lily* Incidentally, this is an apt illustration of the haphazard way some plants come by their names.

It is reasonable to suppose that in the case of a noble Lily like this, Miellez would have obtained from Brown all the information he could about the origin of the plant; but if he did, not a word of it has come to light; and until something definite is discovered as to the source of Brown's bulbs, the place and country of their origin will remain conjectural.

It did not take the Dutch and Belgian nurserymen long to appraise the merits of L. Brownii, and not being difficult of increase by the bulblets which cluster in quantities at the base of the stem, the species soon found its way into commerce, and has remained there without serious interruption ever since. What is, perhaps, more to the point, is that it is apparently the same in all its parts as it was nearly a hundred years ago. eloquent testimony to the virtues of propagation of Lilies by root or bulb offsets—practically the only means available, as L. Brownii seldom ripens seed, at any rate, in Europe.

L. Brownii is characterised by the long, arching, dark green, lanceolate leaves, so well shown in Fig. 6, by the chocolate colour of the perfectly formed flower bud and the classic shape of the flower, which might almost have been carved out of marble. When the bud first opens it reveals an ivory lining to the trumpet, but as the petal-tips slowly turn back this changes to snow-white, in coldly beautiful, glistening contrast to the rich tint of the outside of the flower. The long, regular leaves, the form, colour and port of the flowers give the species an air of dignity and classic beauty not found in the genus except now and again in exceptional examples of L. Sargentiae.

Though not a constant one, another peculiarity of L. Brownii is the bulb, of which the unusual shape is well shown in the reproduction (Fig. 7, p. 13) of the drawing of it in Dr. Wallace's *Notes on Lilies.** It will be seen that the scales are hollowed out at the base, and as these fit tightly one over another, the doctor advanced the ingenious theory that moisture which finds an entry at the flat apex where the scales are looser, lodges in the cup-shaped depression at their base and causes the decay which is a troublesome feature in the cultivation of the species.

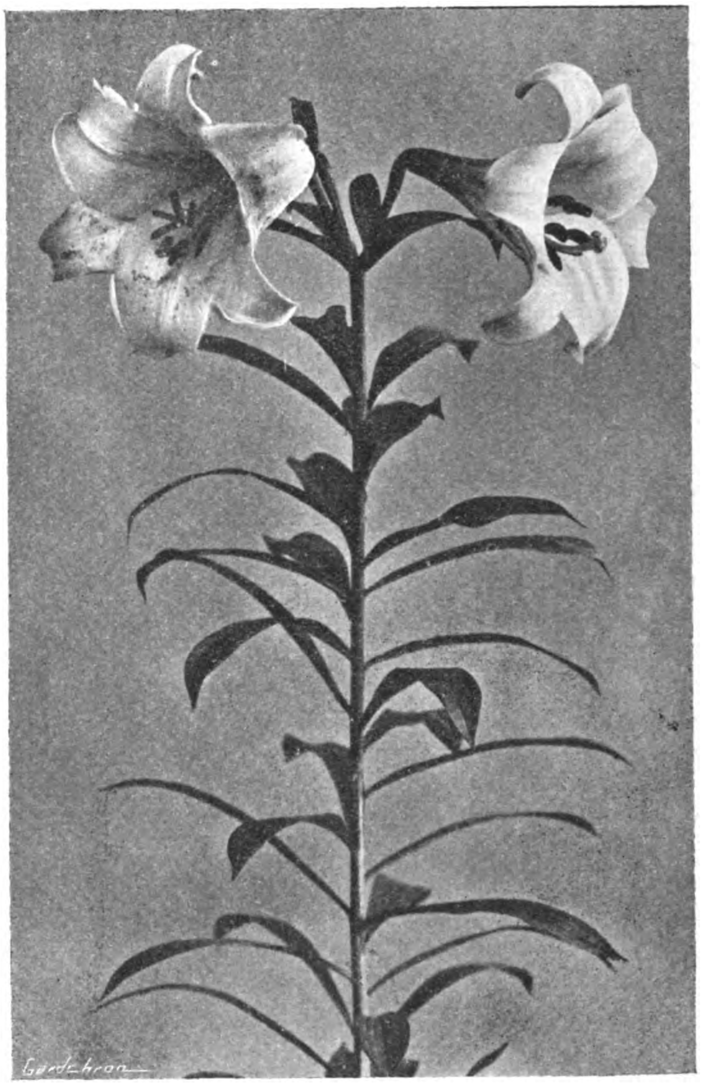

FIG. 5.—LILIUM BROWNII VAR. COLCHESTERI.

Although L. Brownii has been cultivated commercially for so long by the Dutch nurserymen in the sands of Holland, it is undeniably difficult to manage in this country. To bring bulbs to saleable size in a nursery and then dispose of them is a very different matter from the subsequent cultivation of such bulbs in a garden. The writer had several isolated specimens of it in his garden for sixteen years and though they flowered annually, none showed any tendency to increase: they varied a good deal year by year, too, sometimes throwing one flower, sometimes three, and in a horticultural sense their annual appearance and behaviour was always a source of anxious anticipation.

The classic example of the successful cultivation of L. Brownii in Britain is in the wood at Hillbrook, Iver Heath, Buckinghamshire, where the late Sir Henry Yorke succeeded in establishing a colony of the species (see *Gard. Chron*, 3rd series, vol. LXIII (1918), p. 110, Fig. 50). The prosperity of this colony varied from year to year according to the season, and contingencies such as the ravages of mice, etc., but over a series of years the bulbs multiplied to such an extent that it was occasionally necessary to thin out the offsets. The soil is a rather holding but naturally drained loam, on the crest of a bank facing east and partially sheltered. There are, doubtless, other established colonies of the species in gardens, but the writer has no knowledge of them.

The relationship between L. Brownii and the Lily called L. japonicum colchesteri has been of interest to students since the former Lily first appeared. The so-called L. japonicum

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* *Cat. Expos. Soc. Hort., Lille, June,* 1841.

* *Notes on Lilies,* p. 96.

Supplement to The GARDENERS' CHRONICLE

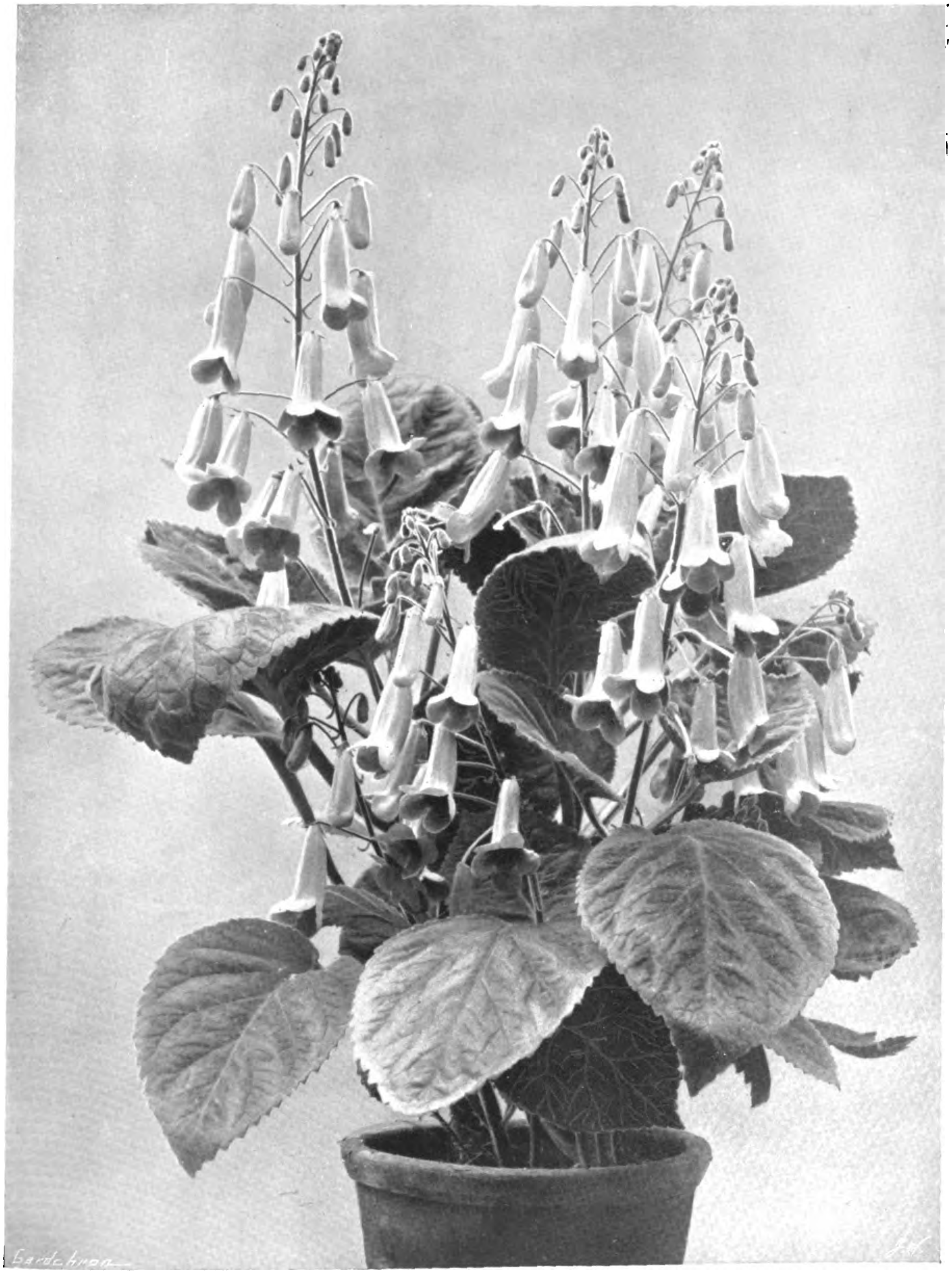

Photo C. P. Raffill

A HYBRID NAEGELIA.

colchesteri reached this country in 1804—thirty years before L. Brownii—having been received at Kew from Canton. Aiton, who named the Lily,[*] confused it with L. japonicum, but it was not till 1875 that the varietal name, colchesteri, was added.[†] Before and after that many other names were bestowed on the plant, and few Lilies have had such a confused synonymity.

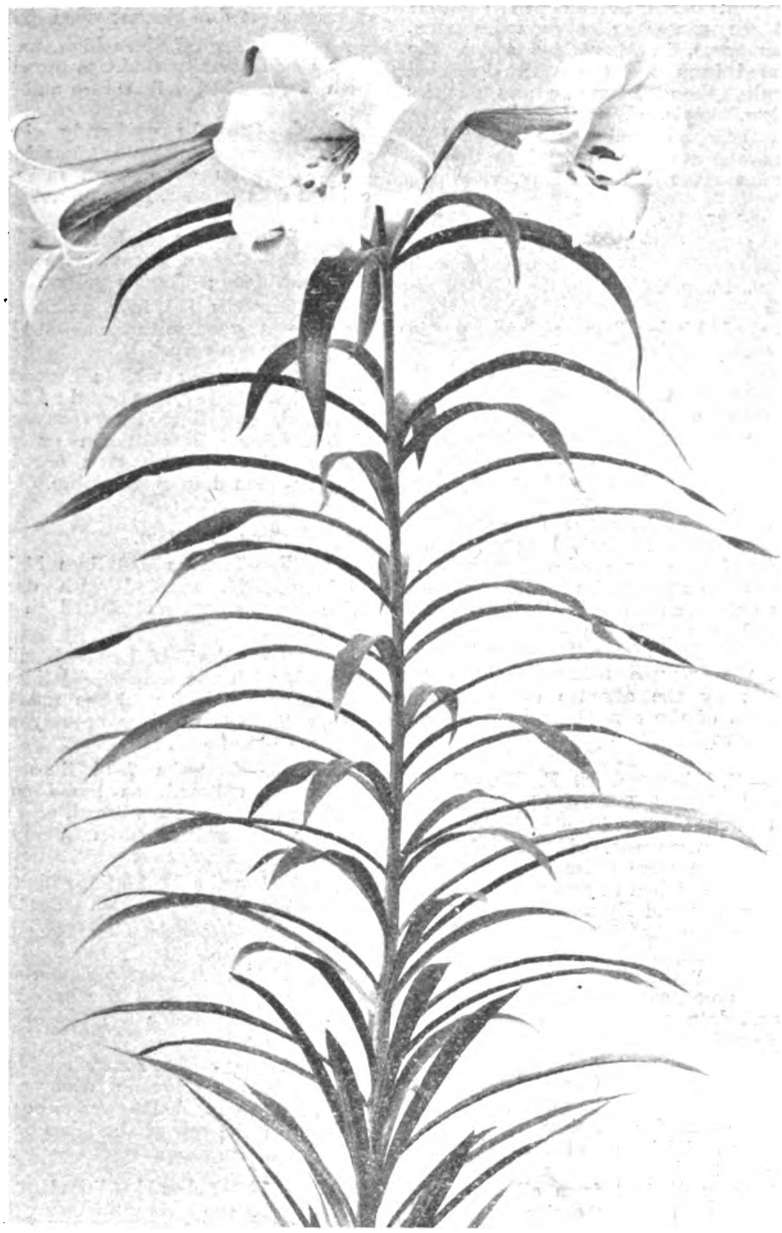

FIG. 6. LILIUM BROWNII.

But as the Lily has no connection with L. japonicum and seems to be closely related to L. Brownii, there is much to be said for the suggestion advanced by E. H. Wilson[‡] that it should be renamed L. Brownii, with the varietal name colchesteri attached.

This Lily has a wide range through the temperate regions of China, and Farrer seems to have found it in Burma: it probably finds its way into the collector's knapsack more often than other Chinese Lilies; and, at any rate, there is no lack of it in herbaria. Though seldom really perennial, it has been grown in British gardens for many years, but always from bulbs imported from Japan, where the Lily is cultivated for market under the name of L. Brownii var. odorum. It is one of the many plants of Chinese origin which gardeners have unwittingly come to regard as purely Japanese, and it was not until E. H. Wilson found the wild plant that the truth became known. But for the spread of botanical knowledge about new plants, already referred to, L. Henryi might some day prove a parallel case, for though entirely a Chinese species, it has for some years been cultivated in Yokohama for sale.

The temptation to regard L. japonicum colchesteri as the wild type of which L. Brownii, of Brown, is a cultivated form, is strong, and if that view were accepted the logical procedure would be to rename it L. Brownii, and reduce Brown's Lily to the position of a variety, as, indeed, it may be. But, no doubt wisely, botanists are slaves to convention, and as Brown's Lily has the right of precedence to his name, it will doubtless stand. Moreover, no one knows whether it really is a cultivated form of the wild Lily, or itself a good wild species; if the latter, it must assuredly have a very local station.

The exact relationship of the two Lilies has not been determined. Elwes[*] makes no bones about it, and taking a characteristically broad view, refers the two to one species. Botanically, they may be one; horticulturally, they are very different, though they sometimes have a strong character in common—the bulb. The leaves are different, and so are the flowers in form, colour and scent. Dr. Wallace, who made a careful comparative study of a batch of the two Lilies in growth and left lucid notes of his observations, likens the fragrance of L. Brownii to that of L. longiflorum, and of L. japonicum colchesteri to that of the Cape Jessamine,[†] a difference not only in quality but in strength. Incidentally, Farrer found the scent of L. japonicum colchesteri "overpoweringly sickly and sickening."[‡]

The anthers in Brown's Lily are of an appropriate dark brown colour: in the other they are light brown: in L. Brownii the stem is a bronzy-brown, with the leaves beginning about eight inches up: in the other it is almost glaucous green, as are the leaves, which begin close to the ground. When Brown's Lily first pushes through the earth the stem is a rich bronze point; the other is light green. None of these differences may be of scientific value, but they count horticulturally, and a point which emerges from extended observation of the two Lilies is that while L. japonicum colchesteri varies in many ways, L. Brownii is fixed.

There is some hope that if Brown's Lily is a wild plant, its habitat may yet be discovered, for Dunn and Tutcher[§] included it in their list of the Hongkong flora as "on the hills among grass, Hongkong; Lantao Island, Hongkong, New Territory"; they may possibly have confused it with L. longiflorum, which seems to be wild in Hongkong, but that is hardly likely, and plants raised by the writer from seeds sent to him by Mr. Tutcher some years ago have proved much nearer to Brown's Lily than to L. japonicum colchesteri. At the time the writer had little doubt the plants were the true species, but there seems a doubt as to the origin of the seeds, and they may have come from plants cultivated in the Botanic Garden at Hongkong. It was not possible to clear up the point before Mr. Tutcher's death, so that there is still a doubt as to the locality of the plant.

A remarkable point about L. Brownii is that it never seems to ripen seeds in Britain. Elwes[¶] never saw a capsule, nor, in twenty-five years of close observation, has the writer seen one. Seminal propagation might clear up the doubt as to the relationship between the two Lilies, and until we have definite evidence, no one is entitled to assume that L. Brownii is or is not a wild plant. Under cultivation it has not, apparently, altered in ninety years, and though, as already explained, that may be due to the method of propagation, we are entitled to regard it as very much the same now as when Brown first received the bulbs so long ago. *A. Grove.*

CLERODENDRON FALLAX.

PLANTS of Clerodendron fallax raised from seeds sown early in the previous year and which have flowered during the autumn should now have their spent flower spikes removed and be placed near to the roof-glass at the cooler end of the stove, allowing them several weeks' rest, keeping them only moderately moist at the root. So soon as the days begin to lengthen the plants may be re-potted and re-started into growth in heat, with a view to flowering them a second time during May and June. *F. J. C.*

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[*] *Hort. Kew.*, ed. 2., II., p. 240 (1811).

[†] *Fl. des Serres, XXI.*, 73, t.t. 2193-94 (1875).

[‡] *Lilies of Eastern Asia*, p. 30 (1925).

[*] *Mon. of Gen. Lilium*, t. 9.

[†] *Notes on Lilies*, p. 136.

[‡] *Gard. Chron.* ser. 3, vol. LXVI., p. 125, Fig. 62 (1919).

[§] *Kew Bull., Misc. Inform. (Fl. Kwangtung and Hongkong)* add. ser. X., p. 280 (1912).

[‖] *Gard. Chron.*, vol. LXVII., p. 181 (1920).

[¶] *Mon. of Gen. Lilium*, t. 9.

MESEMBRYANTHEMUM.

(*Continued from vol. LXXVIII, p.* 500).

37a.—C. tantillum, N. E. Br.—Growths as first developed after importation, 2-4 lines high, 2½-4 lines broad and 2-3 lines thick, some of them smaller, obconic, faintly or dis-distinctly notched (somewhat as in type M), and faintly ridged at the top, with the orifice ½-¾ line long, having gaping lips; surface smooth, glabrous, green, not at all glaucous; the orifice area is broadly elliptic or orbicular and pallid, surrounded by dark green or at the sides (where the marking is slender) purplish; at each end of the orifice the dark marking enlarges into a large, irregularly triangular patch, on the ridge on each side of the orifice is a purplish or dark green dot or short line, and thinly scattered over the top are also from 2 to 9 other small dots. Calyx much exserted, 4-lobed, membranous, whitish, with the lobes tipped with reddish or greenish hue; tube 2 lines long; lobes ¾ line long, ovate, obtuse. Corolla (a dried flower only seen) probably 5-6 lines in diameter; tube exceeding the calyx, about 3½ lines long; petals magenta-purple; no staminodes or inner petals at the mouth of the tube. Stamens numerous, in 4 series at the throat of the corolla-tube, the two upper series exserted, yellow. Style 3½ lines long, slender, attaining to the mouth of the corolla tube; stigmas 4, about ⅓ line long, yellowish. Capsule 1¼ line in diameter, quadrangular, with 4 valves and cells, thin, pale brown; each valve with one central, honey-coloured, expanding keel and broad, membranous, spreading, marginal wings. Seeds minute, ¼ line in diameter, compressed, somewhat pear-shaped in outline, smooth, pale brown.

Little Namaqualand: Vicinity of Steinkopf, Meyer! Marloth 6512!

This appears to be allied to C. minusculum, N. E. Br., although quite distinct from that charming species.

26a.—C. Taylorianum, N. E. Br.—Growth 4-7½ lines high, 3-7 lines thick and 3½-5 lines broad, circular or elliptic in outline at the flattened or transversely depressed top; orifice ¾-1¾ line long; surface usually purplish-green on the sides and dull greyish-green on the top, marked with blackish-green dots. Flowers unknown.—Mesemb. Taylorianum, Dinter in *Fedde Repert., Beiheft (Succulentenforschung in Sudwest Afrika)* v. 23, p. 58 (1823); and Dinter and Schwantes in *Zeitschr f. Sukk.* v. 2, p. 27 (1925).

Great Namaqualand: Klinghardt Mountains, Dinter 3872.

This species is unknown to me.

15.—C. viridicatum, N. E. Br. var. punctatum, N. E. Br.—Growths as in the type, but of a somewhat greyish-green, with the sides often purplish-tinted and the top thickly sprinkled with very small dots of darker green, not confluent nor arranged in lines except sometimes along the obscure keel, and the orifice somewhat indistinctly outlined with similar dots.

Laingsburg Division: near Grootfontein Peers!

I have had this variety under cultivation for many years but have not seen its flowers, and find that it is fairly constant in the character of its dotting, by which alone it can be distinguished from the type, and as the typical form often has some of its growths more or less dotted, I have no doubt that it is a mere variety of that species.

In *Gard. Chron.*, vol. LXXI, p. 361, I have wrongly placed this species, for it should have been placed after C. pisinnum, on p. 214, as the surface is covered with a very microscopic puberulence, and is faintly velvety to the touch.

11a.—C. Whettsteinii, N. E. Br.—Growths 6-9 lines high, 10-15 lines broad and 10-12 lines thick, broadly obconic, circular or elliptic in outline at the truncate flattish top, which often overhangs the sides (type H); orifice 2-2½ lines long; surface smooth, glabrous, glaucous-green, faintly and rather minutely dotted with darker, and the orifice outlined with darker green. Calyx usually and sometimes the ovary exserted, 4-6 lobed; tube 3-3½ lines long, 1½ line broad, greenish; lobes 1-1½ line long, oblong, obtuse, reddish or green. Corolla 10-15 lines in diameter, expanding in daytime irrespective of sunshine or dull weather if the temperature is warm enough, and lasting about a week; scentless; tube 4-5½ lines long, about as long as or longer than the calyx, whitish; petals numerous, in 2-3 series, widely spreading and closely overlapping one another, 4-7½ lines long and ¾-1¼ line broad, notched at the obtuse tips, bright rosy-magenta; staminodes none. Stamens numerous, in about 4-5 series, the upper exserted from and the others included in the corolla-tube; filaments and anthers bright yellow. Style about 5-7 lines long, included in the corolla tube or exserted 1-1½ line beyond the stamens, divided at the top into 4 stigmas about ¾-1 line long, very pale yellowish.

M. Wettsteinii, Berger, *Mesemb.* p.p. 285, 288, fig. II. (1908); Schlecter in *Engl. Jahrb.* v. 45, p. 229; M. truncatellum, Othmer in *Gartenwelt*, v. 11, p. 301, with fig. (1907), not of Haworth.

A native of Little Namaqualand, precise locality unknown, Miss Phillimore!

Described partly from a portion of the original plant described by Berger, the locality of which is unknown, and partly from a plant of the same species sent to me from Little Namaqualand. My two plants are identical in every particular, except that one has a long, exserted style, 7 lines long, while the other has the style included in the corolla-tube and about 5 lines long, being, in fact, long and short-styled forms of the same species. But whether the length of the style varies in different years on the same plant, as I have noticed it to do in C. bilobum, I am unable to say.

C. Wettsteinii differs from C. Pearsonii by the surface of the growths being faintly dotted on the top; by the absence of staminodes at the mouth of the corolla, and by the very much longer style.

21a.—C. Wiggettae, N. E. Br.—Growths of imported plant 3-5 lines high and 2½-6½ lines in diameter, obconic, elliptic to circular in outline, and when received in their shrivelled, resting condition were quite flat on the top, becoming convex when in growth (intermediate between types D and E), with a central orifice about 1 line long that is not at all depressed, smooth, glabrous, dull green (perhaps grey-green in nature), thickly marked with blackish or very dark green, separate (not at all confluent) large, round dots (which vary from ¼-½ line in diameter) on the top, and the orifice outlined with dark green or purplish; the sides are more or less tinted with dull purple. Only dead flowers seen which demonstrate that the plant is a Conophytum, but are unfit for description.

Oudtshoorn Division: at Hazenjacht, Mrs. I. Wiggett 4!

This is very distinct from all other species that I have seen, being easily recognised by its unusually large, separate dots, which are not disposed in any pattern, but are equally scattered over the top, and by the orifice not being at all depressed. I have much pleasure in naming it after its discoverer.

KEY TO THE SPECIES THAT ARE MORE OR LESS TWO-LOBED AND USUALLY COMPRESSED AT THE TOP OF THE GROWTHS.

1.—Surface-cells as seen with a lens projecting as microscopic points, scarcely hairs, and faintly harsh (scarcely velvety) to the touch, distinctly or indistinctly dotted. (See also C. Meyeri, which really belongs to this group but is not two-lobed at the top). 2

Surface-cells as seen with a lens flat or convex, not projecting as microscopic points, smooth, or in C. exsertum slightly harsh to the touch. 4

2.—Growths 1-2 inches high and ¾-1 inch broad, with the notch 3-6 lines deep; lobes equal, flat on the inner face; dots very conspicuous. **apiatum**

Growths 3-18 lines high and 3-10 lines broad, with the notch ½-5 lines deep; lobes equal or unequal; dots usually evident but not very conspicuous. 3

3.—Growths 9-18 lines high and 5-10 lines broad; lobes rounded on the inner face; glaucous-green or whitish-green. **albescens**

Growths 3-12 lines high and 3-8 lines broad, usually taller than broad; lobes very short or flattened on the inner face; green or somewhat glacous-green. **hahlenbergense**

Growths 4-7 lines high, and 4½-6½ lines broad, usually about as broad as tall, with the notch ½-1 line deep and its faces flat. **quaesitum**

4.—Growths uniformly glaucous-green without dots or other markings. 5

Growths either with more or less evident dots or markings, or not glaucous-green. 6

5.—Growths 1½-2 inches high and much taller than broad, with the notch 4-9 lines deep; flowers yellow. **bilobum**

Growths ½-1 inch high and nearly or quite as broad, with the notch 1½-2½ lines deep; flowers rosy. **nuciforme**

6.—Flowers white; growths 5-16 lines high and 3-7 lines broad; lobes mostly unequal, ¾-3 lines long, convex on the inner face; light green or yellowish-green, with or without a few indistinct darker-green dots on the lobes. **Roodiae**

Flowers red 7

Flowers yellow. 8

7.—Growths 5-8 lines high; lobes sub-cylindric, marked with dark green lines on the top, and dotted on the lower part. **turrigerum**

Growths 7-15 lines high and 5-8 lines broad, with the notch ½-3½ lines deep or sometimes absent; lobes not cylindric; dots distinct, no lines or only a red one on the top of each lobe. **gracilistylum**

8.—Growths 7-14 lines high and 6-10 lines broad, as broad as high or not much taller than broad, of a somewhat dull bluish-green; dots usually not particularly conspicuous. **Eliskae**

Growths 12-21 lines high and 6-10 lines broad, always much taller than broad. 9

9.—Growths pale glaucous-green or whitish-green, slightly harsh to the touch, but without microscopic points or hairs; ovary exserted and the expanded flower rising much above the top of the lobes; stigmas red. **exsertum**

Growths of a somewhat bluish-green; smooth to the touch; ovary not exserted and the expanded flower either below the level of the top of the lobes or not rising much above them. 10

10.—Lobes 1½-4 lines long, somewhat obtuse at the apex; stigmas red. **cauliferum**

Lobes 3-6 lines long, obliquely acute at the apex; stigmas yellowish. **sororium**

The plants of this group seem to be chiefly natives of Namaqualand, where there seem to be several closely-allied species. I have a few others, but they are not at present in a fit state for description.

51b—C. albescens, N. E. Br.—Stemless. Growths 9-18 lines high, 5-10 lines broad, and 4-8 lines thick, cylindric-oblong, compressed, and 2-lobed at the top, with a notch 1-5 lines deep, and the lobes usually equal, but on short-lobed plants often unequal, rounded on the inner (or notch) face; surface covered with a pubescence of microscopic points, scarcely hairs, and somewhat harsh to the touch, whitish-green or pale glaucous-green, somewhat indistinctly dotted with darker green and with a short red line on the tips of the lobes. Ovary more or less exserted. Calyx 5- (or perhaps sometimes 4-) lobed; tube 2¼ lines long; lobes 1 1¼ line long, oblong, obtuse, green or reddish. Corolla about 1 inch in diameter, expanding in daytime; tube 4-4½ lines long, slightly longer than the calyx, somewhat funnel-shaped above, yellow: petals about 4 lines long, ¼-½ line broad, linear, subacute or obtuse, bright clear yellow, shining. Stamens numerous, in about 4 series, most of them well exserted from the corolla-tube, yellow; filaments 2–3 lines long. Style 3 lines long, greenish, stigmas 6, about 2½ lines long, pale reddish. Top of the ovary conical, green.

Little Namaqualand: locality unknown, but possibly from near Chubiessis, as it was sent by Professor Pearson along with C. cauliferum.

This very distinct species is know by cultivators of these plants as "Heath's seedling," and Dr. Rodier Heath informed me that he raised it from seeds taken from a capsule that was upon one of the plants sent to Kew by Professor Pearson along with C. cauliferum. The plant died, and the seedlings raised from it by Dr. Heath now exist in several collections. I have cultivated it for many years without succeeding in flowering it, and am indebted to Mr. T. M. Endean, of Laindon, Essex, for the loan of a plant in flower, from which the above description has been made. *N. E. Brown.*

(*To be continued.*)

FLORISTS' FLOWERS.

NEW CHRYSANTHEMUMS OF 1925.

DURING the autumn of last year, thirty-six varieties of Chrysanthemums were honoured by the Floral Committee of the National Chrysanthemum Society with first-class certificates, and about a score of these also received the Award of Merit of the Royal Horticultural Society. One variety not placed before the committee of the former was selected for recognition by that of the latter. It cannot be said that the number is a large one as compared with some former seasons, but it indicates a high standard of excellence, for the general presentation of seedlings did not go below the average of recent years.

Some idea may be gained of the popularity or favour of certain types or classes of Chrysanthemums if it be mentioned that eleven varieties were early-flowering—seven of these being put up in spray form as opposed to disbudded blooms; eleven were of the decorative, or market type; four were exhibition Japanese varieties; eight were single-flowered, one incurved, the other of Anemone form. For the first time, probably, the medium-sized blooms had dominated the giants. By this it must not be inferred that show flowers are on the wane in the estimation of growers, but it does certainly point to improvement in commercial varieties. The comparatively few single varieties that were honoured go to show that it is no easy matter to raise a good one, notwithstanding the ease in obtaining seeds of this class.

It is interesting to point out that the greater number of successful novelties were seen both early in the season and late, those of the beginning and the end about equalling each other, and these "earlies" and "lates" comprised two-thirds of the whole. Thus it would seem that the powers that be guide us in relation to present needs, knowing that mid-season varieties are by no means scarce and will take care of themselves, as it were. This must surely be the standpoint of the market grower who does not wish to add to the mid-season glut of flowers.

Referring to the early-flowering sorts, two of the disbudded ones named Fire Crest and Lichfield Peach are in commerce already, the other two are Crimson Circle and Mayford White; both of these are gains in their respective colours. In spray form, Phoenix and Brightness are in the lists of traders. Cranford is deep yellow, and Cranford Cream much lighter; both are excellent. Shirley Pride mauve-pink; Berengaria, a rose shade, and Chancellor, fawn, represent capital new sorts.

The giants of the year—I mean additions to the show sorts—are: J. Baxter, a neatly recurving bloom of an amaranth shade, with attractive, coloured florets in the centre; Mrs. A. Holden, crimson, with bronze shading and of graceful, drooping form: Ajax, of big, solid, incurving style, deep yellow, with carmine suffusions inside; and Belle Chinoise, a specially rich yellow of recurving shape. The incurved variety named Ondine is in commerce; and Mary Godfrey is an attractive blush-pink Anemone-flowered form, with deeper coloured outer rays; this variety is large for the type.

The single-flowered sorts arranged in order of their presentations include Jessie McNab, a yellow of good size and substance; Mrs. F. Brill, already in the lists: Alert, a good crimson; Ruby Ray, neat, crimson, of market style; John Langford, clear yellow: Crimson Dawn, particularly good; Incomparable, rich purple, with a white zone, a first-rate sort for show purposes; and Zenith, deep orange, a variety of medium size.

Similar order is observed in the case of the decorative, or "cut-flower" sorts as to time of exhibiting, and all except the two first-named won honours subsequent to the great exhibition early in November. Mayford Yellow is rich in colour and the flower remarkable for its lasting qualities; the crimson Mrs. R. H. Felton, neat in petal and form; Clio, crimson terra-cotta; Enton Beauty, crimson-maroon; Ra, neat in formation and of yellow colour: Jewel, golden-bronze, of good shape: Delicata, a shapely, pearl-pink bloom of fine substance; Pink Prize, a deep shade for the time of year; Bianca, reddish-bronze: Phryne, a very pretty flower of soft pink colour; and Omega, golden-apricot, of the incurved type.

In the estimation of the writer, the above-named novelties constitute a set well above the average merit, while not a few varieties which failed to secure an award when shown are worth a trial. The additions to late-flowering varieties are numerous, and in strength of growth as well as colouring and substance of blossom the new-comers will be found most acceptable. Raising seedling Chrysanthemums, the double ones more especially, calls for great care and perseverence in our changeable climate: but it is not a matter in which those with the greatest facilities are the most likely to obtain the best results. *H. S.*

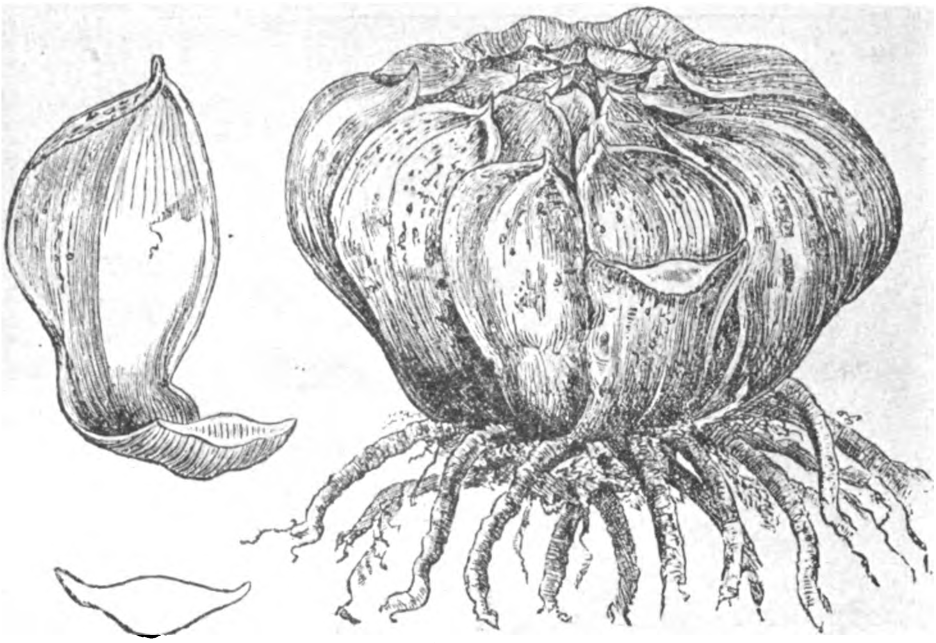

FIG. 7. BULB OF LILIUM BROWNII.

(see p. 10).

HARDY FLOWER BORDER.

PAPAVER UMBROSUM.

THE annual Papaver umbrosum produces self-sown seedlings in abundance, and is a plant of great beauty. Its height is generally given as eighteen inches, but it is frequently considerably less, except in good soil, and, when dwarfer, it loses none of its beauty by its lesser stature.

It has large flowers of a most attractive shade of deep crimson, decorated with black blotches, which I feel confident no one would desire to eliminate, as so many have sought to do in the case of the flowers of Papaver orientale.

As a Poppy to scatter broadcast among other flowers, or to naturalise in a semi-wild spot, P. umbrosum will secure the affection of its owners once they have become acquainted with its charms. It is now many years since I first obtained seeds and sowed them in a border. The seedlings grew well and flowered in due course, and they left a numerous family of descendants, which in turn presented me with a plentiful crop of free-flowering plants, which were all the finer from being self-sown. This packet supplied me with plants for at least twenty years, but one arctic winter, which killed practically all the self-sown seedlings of hardy annuals in my garden, destroyed my hopes for the following year by the destruction of all my seedlings.

However, seeds which had not germinated in the autumn came up in the following season, so that I was not utterly bereft of this charming Poppy. *S. Arnott.*

ASTER CALIFORNIAN GIANT.

THOSE who require an Aster, suitable alike for bedding-out and for cutting, will find the Californian Giant type highly satisfactory. The stems of the plants are long, and the flowers last well in water.

The varieties Deep Rose and Light Blue are gems, being superior to any others which I have grown.

These sorts were only recently sent out by Messrs. Dobbie and Co., and may be likened to the Giant Ostrich Plume Asters. The flower stems are often over eighteen inches in length. Consequently the effective arrangement of the blooms in vases is an easy matter. *Charles Hodgson.*

BULB GARDEN.

BULBOUS PLANTS FOR SHADY SITUATIONS.

THERE is a fascination in any kind of vegetation that will thrive and flower in shady places, such as under trees or in borders shaded by tall buildings. Hardy Ferns are very valuable in providing greenery or foliage in shady spots, and further interest may be added if suitable bulbous plants are arranged in clumps between the Ferns. The hardy Cyclamens, which may be included amongst bulbous plants, are extremely beautiful in both flower and foliage and succeed beneath trees; they thrive better if a little lime rubble is incorporated with the soil. C. Coum has rosy-crimson flowers and olive green foliage. There is a pure white variety named album; C. europaeum has sweetly-scented, crimson flowers in autumn; C. hederaefolium (the Ivy-leaved Cyclamen), in shades of white and bright rose, has handsome, marbled leaves; C. ibericum has white and rosy-pink flowers in winter and spring; whilst C. repandum, a pretty Italian species with crimson flowers and olive green foliage, flowers from March to June.

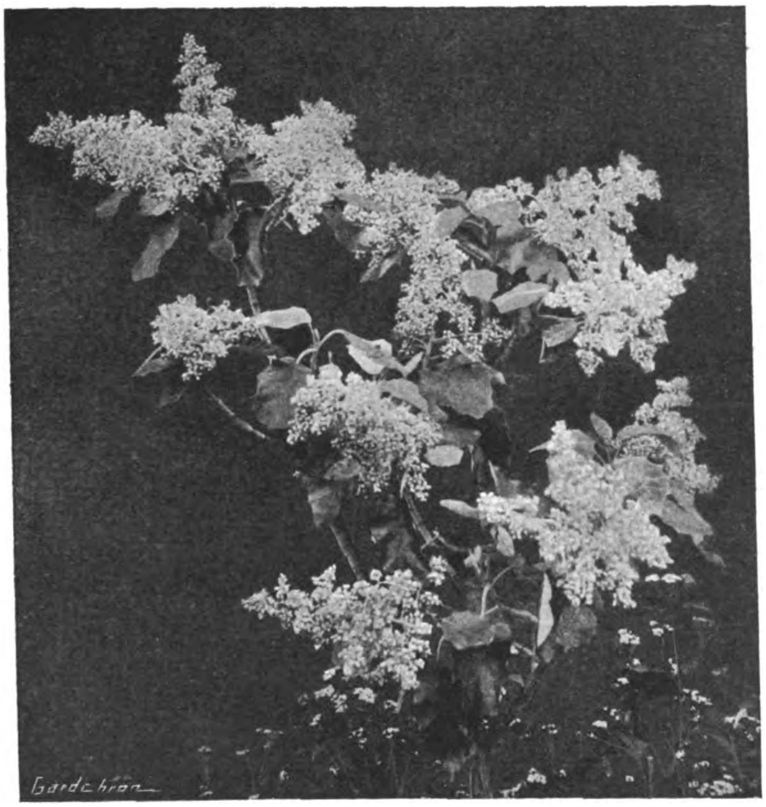

FIG. 8.—BRACHYGLOTTIS REPANDA FLOWERING AS A POT SPECIMEN.

In spring, the Erythroniums make a glorious display if planted in a mass, with their pretty, variegated foliage and Cyclamen-like flowers in various shades. The dwarf European species are old favourites and well-known, with flowers in shades of white, rose and purple. The American species and varieties are far superior to the European members, having taller flower stalks and numerous flowers of various colours. E. californicum is chrome-yellow; E. grandiflorum robustum golden yellow; E. Hartwegii, primrose; E. Hendersonii, pale lilac, with a purple centre; and E. Johnsonii, rose pink. Many have beautifully mottled or marbled foliage, above which stems varying from eight to fifteen inches tall bear from three to six large nodding flowers. These plants are extremely decorative when naturalised in shady situations.

Glorious as is the common native species of Anemone, A. nemorosa, the Italian species A. apennina, with large, bright blue flowers, and the Grecian species, A. blanda, with deep blue flowers are even more showy, and should be planted with a lavish hand in woods or copses, where they will quickly form dense cushions smothered with the daintiest of blue flowers during spring. Other suitable and showy kinds are A. nemorosa Allenii and A. n. Robinsoniana, in shades of blue, and A. ranunculoides, the yellow-flowering wood Anemone.

The Trilliums (Wood Lily or Trinity Flower) are interesting and exceedingly showy plants for moist and shaded situations. They should be planted in clumps to form colonies, and allowed to become naturalised. Their large, handsome, dark green foliage and three-petalled flowers are most effective for a long time. The most showy species are T. erectum, reddish purple; T. grandiflorum (Wake Robin), snow-white fading to blush with age; T. recurvatum, brownish purple; T. sessile californicum, creamy white; T. stylosum, rose; and T. undulatum (syn. erythrocarpum), snow-white, conspicuously spotted with red at the base. These Trilliums should be planted in a deep, moist, sandy loam containing plenty of leaf-mould. *W. Logan.*

ALPINE GARDEN.

ACHILLEA LEWISII.

WE are indebted to Mr. Clarence Elliot for his notes on Achillea Lewisii (vol. LXXVIII, p. 477). Among other points to which he refers is that of the name of A. Lewisii, and he also states that an identical plant appears under the name of King Edward. The point of its origin has puzzled me, and I am still uncertain as to whether the plants have been raised separately, or whether a different name has been applied to, say, A. Lewisii, from its being received from some source without a name. This has frequently happened with plants, and affords no end of trouble to many.

I have seen this yellow-flowered dwarf hybrid Achillea more frequently under the name of King Edward than under that of A. Lewisii, yet I feel disposed to accept the latter as the original name.

On the occasion of my last visit to the garden of the late Mr. James Whitton, at Bellahouston, Glasgow, where he had taken up the cultivation of alpines as a hobby after his retirement from the Directorship of the Glasgow Parks, I found this Achillea growing under the name of "King Edward," as I had seen it in other gardens. Mr. Whitton and I had a discussion about the name of King Edward with which we did not feel satisfied. I entirely agree with all that has been written by Mr. Elliot in favour of this hybrid Achillea. It far surpasses A. tomentosa, which one would accept as one of the parents. I think the other may be A. Aizoon, but it might well be some other dwarf Milfoil.

A. Lewisii, as I prefer to call this Achillea at present, until otherwise advised, is a most valuable rock plant, and is capital as an edging or front row plant for the border. *S. Arnott.*

PLANTS NEW OR NOTEWORTHY.

BRACHYGLOTTIS REPANDA.

THIS very interesting New Zealand shrub is seldom met with in gardens, but I venture to suggest it deserves to be grown as a pot subject for conservatory decoration. Although it has not proved sufficiently hardy to withstand our winters out-of-doors—except in a few favoured localities—a cool house is all that it requires for protection. The large, cordate, irregularly lobed leaves, are dark green above, and cottony-white tomentose beneath; as many of the leaves show their undersides the contrast is very striking.

The flowers are individually small, but are borne on dense terminal panicles; they are ivory-white, faintly scented, and although not especially beautiful, they give the whole plant a graceful appearance.

The accompanying illustration (Fig. 8) shows the freedom with which this species flowers, especially if its roots are confined in a comparatively small pot or tub. *C. F. Wood, The Warren Gardens, Hayes, Kent.*

[Brachyglottis repanda was fully described and illustrated in *The Gardeners' Chronicle* of June 15, 1895, from material obtained from Treso, Isles of Scilly. This species has been referred to in these pages on several other occasions, notably in our issue of July 18, 1908, when the late Mr. W. Fitzherbert described a large specimen, accompanied by illustrations (Fig. 9), which flowered out-of-doors at Kingswear, Devon.—EDS.]

TREE PLANTING FOR SHELTER.

THE benefits to farm stock and crops on exposed and high-lying grounds that are derived from a well-organised scheme of tree planting, can hardly be overrated. A mountain farmer on Lord Penrhyn's estate in Wales, whose lands extend far up on a spur of the Snowdon range of hills in Carnarvonshire, informed me that a shelter plantation which had been formed some years previously along the exposed boundary of a portion of his farm was valuable to both man and beast. But this is by no means an exceptional instance, as on the Gwydyr estate, at Llanrwst, the agent pointed out to me two farms at high altitudes that had increased in rent value after tree planting had been carried out; a case that is common enough in the north of Scotland, and of which I have records.

Few, other than those who have been actually engaged at the work, have the remotest idea of the difficulties and hardships that are connected with the planting of exposed hill sides during the winter and early spring, especially such as are fully exposed to the prevailing wind of the district. The fierce, long-continued and hard-hitting blasts, that are almost constantly experienced on the Scottish and Welsh hills and other exposed grounds, tell hardly on newly-planted trees, be they of whatever kind, and point out that a great amount of discrimination is required in dealing with such situations.

Previous to forming the plantation first referred to, which was at altitudes up to fully 600 feet, and fully exposed to the almost incessant winds that blow from the Atlantic Ocean, the adjoining lands were quite incapable of cultivation, but now crops have gradually crept up the hill-sides, while the farm stock find a much needed shelter that they were formerly denied. The benefit to both crops and stock was particularly marked, as previously where only the hardy mountain sheep could exist, cattle of several kinds are now to be seen, while Corn and Potatos occupy much of the land that was formerly growing Heath and Gorse. The belt of plantation referred to, which was long and narrow, bounded the entire length of the higher-lying lands of the farm, and was in one continuous piece, with indentations for the sheltering of sheep and cattle during inclement weather.

Previous to preparations for planting, the land was tenanted by such dwarf, shrubby growth as the dwarf Willow, Juniper, Gorse, and Broom, the last, on the drier portions of the ground, while in dampish hollows the Alder and Thorn were conspicuous by their procumbent habit of growth.

The land to be planted was first enclosed by an iron and wire fence, except on the higher side, which was bounded by a stone dyke and ditch. Clearance of the land from all rough-growing vegetation that would be likely to interfere with planting was next engaged in, while a few ditches were opened where necessary, and the pits for the trees dug at distances which varied from three feet to four feet, according to exposure. The soil being of a free, loamy character, the cost of opening the pits, which was carried out by the unemployed at a cheap rate per hundred, was not excessive, while plants were obtained at the time on very moderate terms, a small proportion being from a nursery on the estate. The preparatory work was carried out during the autumn and winter, the planting of the trees being deferred until the early spring. The trees included the Common Larch, Scotch and Corsican Pines, Sitka Spruce, with a few of the common species in the lower grounds, and in the damper hollows hardwooded trees, such as the Alder, Willow and Poplar were planted. Douglas Fir was tried but proved a failure owing to the wind-swept nature of the position. Along the most exposed parts the Austrian and Corsican Pines did unusually well, these being good trees for such positions. Altogether the trees have thriven well, and impart a great amount of shelter to the exposed lands adjoining.

Around many of the high-lying farmyards and fields both in England and Scotland, the common Spruce is largely employed for shelter and around many of the Hop gardens in Kent and elsewhere, the fast-growing Poplar, Willow and other trees of an upright growth are made use of, in order to protect the tender foliage and crop from cold winds, without which it has been found impossible in certain districts to cultivate this plant successfully. There is no necessity to plant extensive woods, long and narrow belts, if judiciously arranged and planted, being equally as effective as denser masses of trees. Often a clump of the right kind of trees if properly placed, will afford a great amount of shelter both to cattle and buildings. For these purposes the evergreen Oak is a most valuable tree, which thrives as well on the sea shore as inland, and is capable of withstanding a large amount of rough usage from cold winds and full exposure. Clumps of the common Scotch Pine, as also the Austrian and Corsican Pines, are also well-adapted for similar sites, and afford a large share of protection to houses and farm stock generally.

Great care is necessary in the management of such trees, in the matter of giving the individual specimens plenty of room for the perfect development of both root and branch, so that a firm root-hold may be secured and the branches retained in a healthy condition, on which wholly depends their value for the purpose under consideration. When allowed to press on each other, the lower branches soon give way, thus counteracting the very purpose for which they were intended. *A. D. Webster.*

GARDEN TOOLS.

THE word "tool" has a very wide application, but in this article it will be necessary to limit its meaning to "any artificial implement, machine or mechanical contrivance used to assist, facilitate or increase the faculty of human expression in any matter relating to art, science, manufacture or industry!"

It will also be necessary to deal mainly with the tools concerning our own particular industry, but it will not be necessary to make this compartment too watertight. If digression is criticised, I would remind critics that the great enemy of progress in the past has been narrowness of outlook, with a tendency to assert, for our own particular sphere, a knowledge so specialised and complete as to give us the right to pose as experts. In truth the "expert" is too often the most fatal bar to progress.

Einstein's theory of "relativity" suggests the correlation of all fundamental scientific principles in aid of one great advance in the interests of mankind, and although this may seem remote from "garden tools," in reality it is not so. What I am now pleading for is the receptive mind, a faculty for assimilating and benefiting by the result of scientific research, an enquiring attitude towards any and every article or action with which we come in contact.

Can this be applied to such a common, everyday article as, for example, the garden hoe? I hope to show that it can, and the questions I would suggest are:—(1) Why do we use this particular tool, and how far could its use be extended or curtailed? (2) Is it the best that can be provided for the particular purpose required, or could it be improved to give greater results with an economy of effort? In this connection we might enquire whether the construction is based on scientific principles, and whether similar objects in other spheres of industry are achieved by the use of superior appliances which might with advantage be copied in whole or in part.

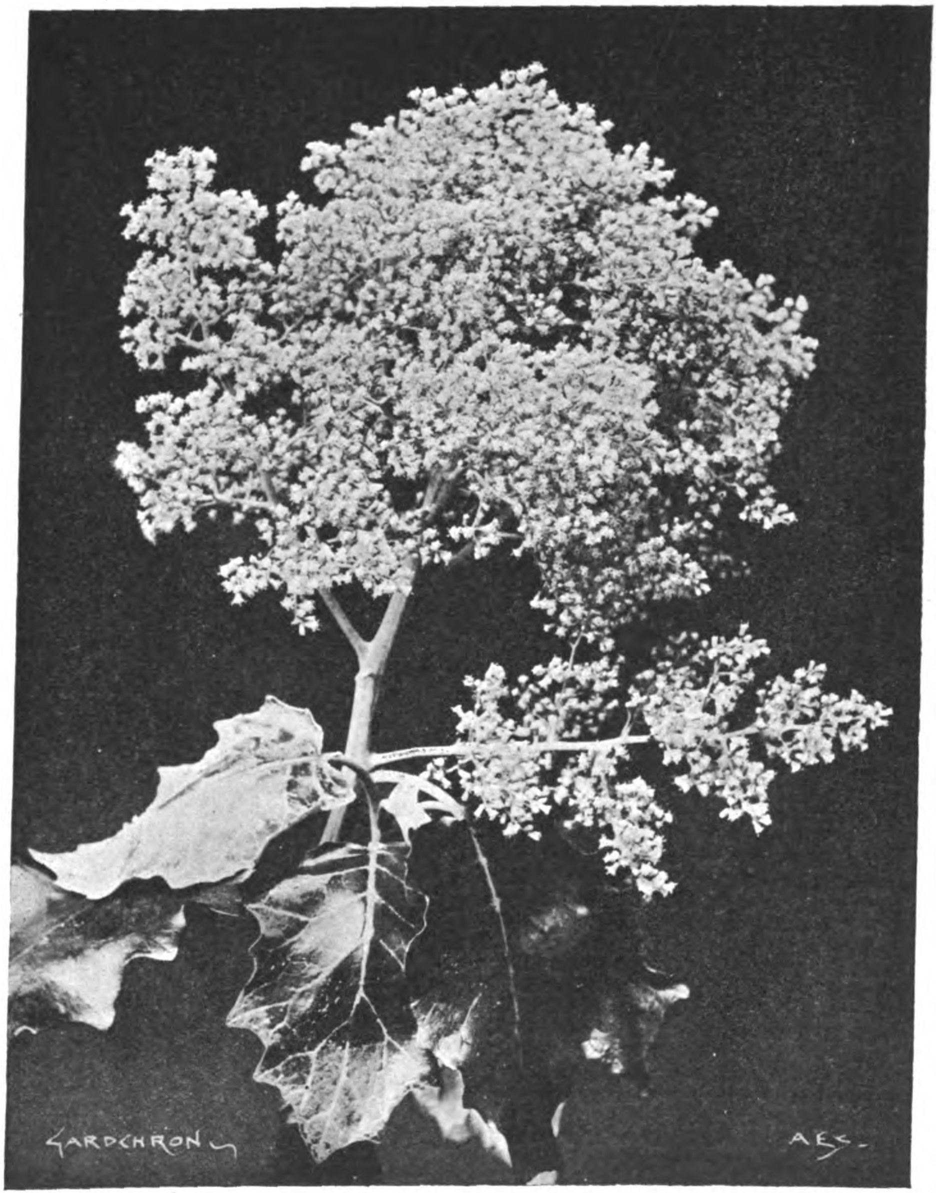

FIG. 9.—BRACHYGLOTTIS REPANDA (INFLORESCENCE).
(see p. 14).

Could time and space be spared, it would be highly instructive to trace the history of tools from the earliest times. As G. K. Chesterton might observe, the use of tools is not an essential or natural characteristic of the human race; that is to say, they are not provided at birth. Animals, other than human beings, get on very well without them, and the remains found in the geological strata of early periods provide no indication that our prehistoric ancestors found them necessary to life. They are thus a product of civilisation. It is not surprising to find that the first indications of the provision of tools by prehistoric man relate to weapons of war. The contrast between the crude, flint arrow heads and the modern weapons of destruction may be quoted, ironically or otherwise, as an example of the onward march of civilisation. Strangely enough, when we come to agricultural tools, we do not find evidence of equivalent progress.

This gives food for thought. Now that, as we all hope, the sword had been definitely turned for all time into the ploughshare, is it not time to use some of the ingenuity and inventiveness formerly directed to the organisation of war to improved methods of increasing the production of the fruits of the earth? In this connection, too, we may well ask whether agriculture, including horticulture, is doomed always to be the Cinderella of the industries.

Horticulturists must be ready and willing to work out their own salvation. They must also be watchful for, and ready to profit by, the existing advantages of civilisation. I refer not only to the research conducted by government departments and various private bodies, and recorded in their official papers, but to the countless advertisements of all kinds of labour-saving contrivances and conveniences which may be found in the advertising columns of any paper. In most cases these appliances save in labour many times their cost. As a nation, we are essentially conservative and slow to adopt new methods, and this applies particularly to gardeners.

I commence with the spade, because from time immemorial it has been quoted as typical of the gardener. When this apparently simple article is considered in detail it will be realised how we approach a problem in a truly scientific manner. For example, the following points will arise in connection with the spade: (1) The length of the blade; (2) its width; (3) shape of the penetrating portion; (4) curve or flatness; (5) thickness of the metal; (6) weight; (7) material; (8) sharpness of the blade; (9) surface; (10) the use of lubricants to facilitate smooth action of the blade; (11) the method of affixing the blade; (12) the length and slope of the handle: (13) the special arrangements for grasping the handle. Again, in the connection with the method of use the following points arise:—(1) the size of the spit: (2) the angle of striking the soil; (3) the height of raising the spade for striking; and (4) the method of leverage.

Many other points will occur to readers, but what I wish to make clear is that there must be a "best method" for each of these points, or rather, a series of "bests," applicable to the heights, weights and energies of the operators and to various soils and conditions. This "best" may be defined as the ideal spade, the use of which would enable a given area to be dug to a required depth under average conditions by the exertion of a minimum number of foot-pounds of energy. If the ideal has been realised its realisation has been fortuitous and the period over which it operated fragmentary. But every foot-pound exerted above the ideal minimum represents so much waste of energy, a waste that might be avoided. Enough has been stated to show that in the thousands of gardens in this country we may waste enough energy every year to turn the waste lands of Britain into smiling gardens, growing enough to provide all our needs in the shape of food. We see columns written in the sporting Press about the swerve of cricket balls, the exact angle at which to hold the bat, etc., etc. Machines have even been brought into action for recording the exact speed of a cricket ball delivered by a fast bowler. But as yet we have not taken steps to find out in respect of the simplest garden tools the precise methods of structure and use that would give the greatest efficiency. I hope the relevance of my apparently irrelevant observations concerning Einstein will now be apparent. The gardener, as such, cannot settle the problems of tools himself. He must seek the aid of many men of science, the help of the professor of statics and dynamics, the metallurgist, the chemist, the geologist, the physiologist, even the psychologist. The gardener would be too much inclined to "call a spade a spade" and think he had settled the matter.

Awaiting the advent of ideal tools, the possession of the best available is a very important item of garden economy, and money spent on them is an excellent investment. A good tool facilitates the work of a competent man and robs the incompetent of a handy excuse. *W. Auton.*

(*To be continued*).

EARLY FRUITION.

THE astounding output of Dr. van Mons in new varieties of fruits, especially Pears, so many of which are still held to be of sterling merit, must have been due to some successful technique, though what that technique may have been is not within my knowledge. An early knowledge of the quality of the fruit of a seedling must obviously be a very great help. Recently (*Gard. Chron.*, Aug. 29, 1925, p. 161), an article appeared, taking as its text a contribution by Mr. G. T. Spinks (*Journ. of Pomol. and Hort. Sci.*, vol. IV., 1925, p. 141); on reference to the original, it appears that beyond a sort of half-way confirmation of the continental adage "Winter pruning for Wood, Summer pruning for Fruit," root pruning and ringing seem to have been the only active endeavour to promote the desired object; it is expressly stated that no summer pruning was done, and that the quest was abandoned. Examination of past literature reveals quite a number of procedures that have been entertained in order to accelerate fructification; some of which might well be tried in any organised attempt to get early knowledge of the value of a given seedling.

First may be mentioned the grafting and re-grafting of a seedling upon itself, which I think has been repeated three or more times; possibly this was one of van Mons' methods. It would seem to be applicable to very strong growers to check their immediate vigour. Next, there is the question of utilising "stipulary" buds; already in 1857, du Breuil (*Instruction élémentaire sur la conduite des arbres fruitiers*, Paris, 1857) had remarked on the remarkable fruitfulness of the productions evoked from these latent eyes, so that the knowledge must date still further back. In more recent years the technique has been further evolved by Lorette, who actually formed whole trunks or main branches from shoots derived from "stipulary" eyes. I am not aware whether the method has been widely used on actual seedlings on their own roots; my solitary experience is with a Plum seedling, which, however, did not blossom till the ninth year from sowing; it was, however, only "stipularised" once. If repeated, "stipularisation" might be somewhat comparable to repeated "on self" grafting. A number of modes have been described to bring these latent eyes into growth.

Then there is the comparatively simple procedure of bending—for instance, turning an upward-growing scion or shoot into a horizontal, (or slightly upward or downward) cordon—for a horizontal or depressed direction often leads to an early production of fruit spurs, whilst remaining upward growths continue infertile. Twisting, or twisting combined with bending, is another practice which may be mentioned.

Next, besides the classic summer pruning, in which a cutting instrument is employed, we have the "pinchings" (*pincement*) done in the green with finger and thumb, about which there has recently been so much discussion on the other side of the Channel. Somewhat allied, we have "breakage" (*cassement*), which may either be complete, leaving a ragged end, or partial—the green-stick fracture of the surgeon—in which a certain portion of the sap is able to pass to the tip, but the active flow, which would cause woody growth, is checked; the instruction usually given is to do the breaking over the back of a knife or some other hard edge. The Lorette system of developing basal latent buds, other than stipulary ones, may also be noticed.

In practice it would appear that two opposed principles may be the objects of concern (1) to promote, (2) to repress vigour; especially perhaps when dealing with seedlings. From observations, it would appear we may successfully strive to achieve either with material obtained from older trees, and inferentially the same may be possible with young seedlings. Thus, in regard to repression, an old cordon (Pitmaston Duchess), some twenty feet high on a wall, has been made a sort of museum at its lower part; some five sorts have been grafted on lower branches, and though, in some cases, others of the same lot of grafts have grown actively and normally, when given normal conditions, on the rather sapless situation of the old cordon they have consistently done nothing but make fruit buds and bear fruit without shoot formation. Next spring, I think of putting on some seedlings, and it may be noted that on such a subject there is a possibility of selecting varying degrees of sappiness at different heights.

In regard to promotion of growth, though not strictly scientifically controlled, as the intermediary stocks were not identical in nature, the following may be cited: grafts of Thompson's Pear were put on cut-back, youngish trees on Quince stocks, one set on Passe Colmar against a wall, the other on Citron des Carmes in the open: the former made nearly four times the growth of the latter. I recently recounted (August, 1925, p. 134) the vigorous growth obtained from a bud of a small-growing old, perry-Pear tree when inserted in a vigorous stock against a wall. This year a very striking contrast is afforded between grafts of a Serbian Quince placed on a cut-back Quince stock against a wall and one of the same lot of grafts placed high up on a branch of a forty-year-old all-spurred standard Pear (the grafting of Quince on Pear dates back some centuries). The former in its luscious and warmer site has made a growth of six feet, with a basal diameter of half-an-inch and the lower leaves measured six-and-a-half inches by five inches, whilst the latter on the old Pear tree have made spindly growths of six inches and seven-and-a-half inches only. Which of the two will first blossom and fruit remains for the future to tell, but the lesson seems fairly obvious that when we desire to promote growth the procedure to be adopted is to graft on a vigorous and sympathetic stock in a warm and sheltered situation. It may well be in the case of seedlings that advantage would accrue, if, first, a growth-promoting graft were made and from the resulting shoot a second grafting followed in a repressing situation, though here, too, the shelter of a wall may not be disadvantageous. At the same time the vigorous scion may be made to serve for trial of other repressive measures such as "stipularisation," or varied summer treatments.

Height above ground is also a possible factor in fruit bud development in some cases. Thus I have noted that three cordon Quinces, on a wall (or *en espalier* as the French term it), some fourteen feet in height and of different varieties, all failed to produce any blossom below the five-foot level, and consequently I eventually cleared the lower parts, leaving a plain stem.

The effect of wall protection, which probably means matters of temperature, has already been given attention: two young Plum trees on the same stock and budded at the same time (Angelina Burdett) afford further evidence; one, left in the open, has blossomed three seasons and has not grown more than five feet in height, the other, placed against a wall, is over ten feet after pruning the tops, and has not yet borne a blossom. The former is in the neighbourhood of other Plum trees and nearly overshadowed by a huge Jefferson, which may have had some dwarfing effect and hastened blossoming; it may be that a reasonable amount of "overcrowding" might take a place in the programme.

Root pruning will hardly come to mind until excessive vigour of growth is present,

Of ringing, I have written nothing—our French friends generally merely mention it to decry it—and I have no personal experience with it beyond seeing a plantation which had been severely handled by vigorous ringing and much of which was grubbed later; but the object of getting early fruiting in a seedling is a different proposition to vandalising an orchard.

Manuring too must be mentioned, but here the need is to know in what form the two important elements—phosphorus and potassium—should be presented in order to favour the desired object; as also the effect of accessory agents, such as manganese and cerium (the latter has been said to have a marked effect upon Maize) and modifications of the soil bacterial flora. *H. E. Durham.*

BROWN ROT AND WITHER TIP OF PLUMS.

(MONILIA CINEREA, FORMA PRUNI.)

THIS disease causes a good deal of trouble in most gardens where Plums are grown as bush or standard trees. It does not generally cause any trouble on trained trees planted on a wall or fence. I am inclined to think that this is because summer pruning is more largely, and also more easily, practised on the trained trees.

Wither tip and brown rot of Plums is reproduced each season by spores from at least two sources. (1) Spores produced from the diseased wood—the wither tip form. (2) Spores produced from the mummified Plums which have been left on, or under, the trees—the brown rot form. Where summer pruning is carried out on trained trees, the main part of the first source is removed each season, also it is fairly easy to see and remove any mummified Plums that are present on trees of the trained types at any season of the year. Spraying up to the present has given very little control over this disease, and our main method of attack is the removal of diseased tissue each season, before this tissue begins to produce spores, *i.e.*, in autumn. This can be done on trained trees more easily and more thoroughly, and this fact seems to explain why the disease does not make headway on this type of tree.

In spite of all that has been written and said about this disease, many growers do not seem to be fully alive to the damage it does each year, or, if the damage is realised, little is done to control the disease. I visited an orchard recently where wither tip and brown rot were bad, especially on the variety Victoria. The grower told me his Plums had "missed" a crop this season, but I noticed that most of his trees were still carrying a fair crop of mummified fruits left over from 1924. At the time of my visit to this orchard, almost all the growths of 1925 were bent over with the characteristic curve which denotes this particular disease.

Lack of time and cost of labour are often given as reasons for not carrying out proper control measures for this disease, but, surely, if it pays to grow Plums at all, it pays to keep the trees healthy and capable of bearing good crops. Much of the work that is done in the control of the disease is carried out during the winter months, and while admitting that it is often more convenient to do the work at this time of the year, it certainly is not the best period. The best time to cut out dead and diseased wood from a Plum tree is during early autumn, for two reasons. In the first place the material to be cut away is more easily seen in trees that are in leaf; and secondly, the diseased material should be cut well back into sound tissue; if this is done during autumn, the wounds so made heal up before winter comes, but if the pruning is delayed until winter the wounds remain open all through the winter months. Wounds of this type give a free entrance to all sorts of fungous wound parasites, especially silver-leaf (Stereum purpureum).

If time could be spared for the removal of diseased tissue during September, I am sure it would make for better control. The earlier the work could be done in that month the better, because I have seen Stereum purpureum producing spores early in October in certain seasons, and it is certainly advisable to have all pruning wounds healed over before these spores appear, and while it is easy to paint over large wounds with some material which will stop the entry of spores, it is not practical to paint small wounds and fungous spores can just as easily get into plant tissue through a small wound as through a large one. *Somerset.*

HARDY FRUIT GARDEN.

MULCHING SMALL FRUIT QUARTERS WITH LEAVES.

DURING the dry period of the past summer many gardeners were concerned about the poorness of the Strawberry crop, and in many instances complete failure was experienced, especially on light soils.

It is almost hopeless to try and keep the beds moist by watering, as the water disappears as fast as it is poured on and the plants derive little benefit unless the ground receives a good mulching. There is no material that keeps the soil moist so well as a good mulching of ordinary tree leaves gathered from the pleasure grounds and woods. I place the leaves between the rows to a depth of six inches, and on this a light covering of long, straw-litter manure from the stables, or Bracken from the woods, to prevent the leaves from being blown away. The rows are examined occasionally for the purpose of preventing any plants from becoming covered. The leaves soon settle down, forming a nice bed, and there is no trouble from weeds. Strawberry beds treated in this way last summer gave excellent crops of fruit, without receiving any water; the leaves were put on in January.

New Strawberry beds, planted in September, 1924, which received a liberal dressing of bone-meal, and were well mulched with leaves, gave a wonderful crop of fruit in 1925.

Where labour is scarce, it is a good plan to cover all the squares of bush fruits—Gooseberries, Black Currants and Raspberries, after pruning; the leaves are wheeled in from the pleasure grounds and placed thickly all over the soil. It is wonderful how these fruits respond to a liberal mulching; and, again, there is no trouble with weeds.

Big bud on Black Currants needs close attention. After the fruits are gathered, and this should be so soon as they are coloured, while the buds are small, the bushes should be given a good spraying with a strong insecticide twice in one week. Bushes that were badly infested with big bud were treated in this way two years ago and gave good results; there was but one third of the amount of big bud as previously, and the bushes have carried good crops of fruit. They were sprayed with ten per cent carbolic soft soap, two ounces to the gallon of water; if some stronger insecticide were used still better results may have been obtained. *D. D. Robertson, Mount Clare Gardens, Roehampton.*

VEGETABLE GARDEN.

SCORZONERA, VIPER'S GRASS OR BLACK SALSIFY.

SCORZONERA HISPANICA, LINN.

THE Scorzonera is a very useful perennial vegetable, native to Europe. It is somewhat akin to Salsify, which it resembles in many respects, except its broader leaf and the colour of its skin, and by which it is rather overshadowed, although its uses as an esculent vegetable are quite equal to those of its pale-skinned brother. In one respect it is superior to Salsify, in that while Salsify deteriorates in fitness for use and quality of flesh after the plant has sent up its flower stems, Scorzonera on the contrary, retains its good qualities while increasing in size; its leaves are also naturally more numerous, and in their young state, make excellent salad.

According to Miller, "the name Scorzonera is derived from the Catalonian word Escorso, signifying a viper, because it is said to be of great efficacy against the bite of vipers. Authors write that the Herb being applied, takes away the venom from the bite of vipers. They say that if a viper be touched with this juice it languishes; and that a man may touch a viper safely if his hand be dipped in juice of this plant." Miller quotes eight different varieties, the first named being Scorzonera latifolia sinuata. Of this he states that it is "the sort commonly cultivated in English gardens for food and physick. This grows naturally in Spain. The root of the plant is Carrot-shaped, about the thickness of a finger, and covered with a dark brown skin. It is white within and has a milky juice. This is the only variety cultivated for use, the others are preserved in Botanic gardens for variety."

Dodoens quotes only one variety, the Adder Herb. Its name in Spanish being *Scurzonera*; in Latin it is *Viperina*. Respecting its virtues he tells us, "It is thought to be marvellous good against the bitings of vipers, snakes and other venomous beasts. It has yellow flowers, and leaves broader than Salsify. It is found in Hungary, Thuringia and Bohemia, and a rose-coloured variety in Italy (so men say) known as Viperaca Italica."

Gerard's *Herbal*, 1697, names two varieties only: "Spanish, narrow-leaved. Hungarian, broad-leaved," and states that the uses are the same as Salsify.

As regards the present day position of Scorzonera, very little has been done to add new or improved varieties to the very limited list. The following are the most useful; Giant Russian: roots long, very smooth and tender, and of excellent flavour. Very popular in France. Vulcan: a German variety, having thick, roots, with pure white flesh. Improved Annual Giant: a Dutch variety of which the raisers state that "sown in spring it gives in autumn fine large, smooth roots, without running to seed like other sorts." If this variety is constant, it should be a desirable acquisition.

In addition to the Spanish Scorzonera, there is a variety named French Scorzonera; Scorzonera picroides, Linn., of which the young leaves are cut and used as green salad. The plant is an annual, but after being cut it sends out fresh leaves, and several successive cuttings may be made in the course of the season; see *The Vegetable Garden* of Vilmorin. *S. B. Dicks.*

HOME CORRESPONDENCE.

Late Wasps' Nests.—My thanks to Mr. Harrison who has kindly sent me portions of one of the nests and some of the wasps referred to on p. 432. I am now able to state that they belong to the species known as the Small Common Wasp (Vespa vulgaris), which more often makes its nest in hollow trees and logs than its very close relative the equally common Large Common Wasp (V. germanica), the latter, in my experience, rarely nesting anywhere but in the ground. The "paper" of the nest V. vulgaris makes is almost invariably some shade of brown, as this species uses rotten wood, whereas that of V. germanica is equally invariably some shade of grey, because sound (though dead) wood is used. I have found V. germanica much commoner in 1925 about here than V. vulgaris, as I have met with only three nests of the latter and about thirty of the former. I have also seen or heard of three nests of the hornet (V. crabro) here—a most unusual thing—two being in Oak trees and the other under the tarpaulin on a haystack in a farmyard. All were small. Even in 1921, the last "wasp year," I heard nothing of hornet's nests about here. *C. Nicholson, Hale End, Chingford, Essex.*

SOCIETIES.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT.

Mr. J. R. Butler presided at the monthly meeting of this Society, held in the R.H.S. Hall, on Monday, December 14.

Eight new members were elected. Three members withdrew interest amounting to £7 7s. 2d., and two members over the age of seventy years withdrew the sum of £7 10s. 0d. from their deposit accounts. The sum of £106 1s. 4d. was passed for payment to the nominees of two deceased members. The sick pay for the month on the ordinary side came to £81 5s. 2d., and on the State section to £83 19s. 8d.; maternity claims totalled £10. Grants were made to twelve members for dental, optical and surgical treatment which amounted altogether to £62 2s. 5d.; eight other cases were considered.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

Friday, December 4.—*Committee present:* R. Ashworth, Esq. (in the chair), Messrs. A. Burns, A. Coningsby, J. Cypher, J. Evans, E. W. Thompson, and H. Arthur (Secretary).

First-Class Certificates.

Odontioda Seymouriae var. Lilacina.—A well-shaped flower, nearly three inches across, of lilac-pink colour, the broad lip being a dark shade. From Mrs. P. Smith.

Cypripedium Bulldog (*Shogun* × *Dreadnought*).—A home-raised seedling. The flat, dorsal sepal has a white margin, and the base is beautifully spotted; the broad sepals and lip are a rich brown. From R. Ashworth, Esq.

Cypripedium Minotaur var. compacta (*nitens Leeanum Bectoniae* × *Euryades var. Rex.*).—This variety has a large, round, dorsal sepal measuring over three inches across, white, with a green base, delicately spotted. From Capt. W. Horridge.

Award of Merit.

Cypripedium Boleus (*Actaeus*) *Ashlands variety* × *Bottonii*).—From Mrs. P. Smith.

Thursday, December 17. — *Committee present:*—A. Hanmer, Esq. (in the chair), Messrs. R. Ashworth, C. Branch, A. Burns, A. Coningsby, D. A. Cowan, J. Cypher, J. Evans, G. Giles, A. Keeling, D. Losh Thorpe, J. Lupton, E. W. Thompson, and H. Arthur (Secretary).

First-Class Certificates.

Brasso-Cattleya The Baroness var. Margaret.—A fine-shaped flower of rich yellow throughout, with the exception of the throat, which is lined with red. From J. B. Adamson, Esq.

Cypripedium Columbus (*Christopher var. Grand Duke Nicholas* × *nitens Leeanum variety Hannibal*).—An exceptionally large flower; the dorsal sepal is very broad, the ground colour being green, and freely spotted with rich brown, with a white margin.

Cypripedium T. B. Armstrong (*Euryades* × *Draco*).—A well-shaped flower, the dorsal sepal being spotted with reddish-brown. Both from S. Gratrix, Esq.

Odontioda Dacia var. Solario (*Odm. eximium* × *Odta. Charlesworthii*).—The flower is solid madder red in colour; the large flat lip has a white column. From Sir J. Rutherford, Bt.

Awards of Merit.

Odontoglossum Thoro (*Prince Albert* × *crispum, blotched variety*), and *Cypripedium Eurybiades Edgemoor variety.* From A. Hanmer, Esq.

Cypripedium Nabob II (*Gaston Bultel* × *Charltonii*).—From Mrs. Gratrix.

Cypripedium Garland var. compactum (*Lord Wolmer* × *Euryades New Hall Hey*).—From Mrs. P. Smith.

Laelio-Cattleya Schröderae var. Queen Alexandra.—From J. B. Adamson, Esq.

Groups.

A Gold Medal was awarded to J. B. Adamson, Esq., Blackpool (gr. Mr. R. Taylor), for a group of Orchids.

S. Gratrix, Esq., West Point (gr. Mr. C. Branch), was also awarded a Gold Medal for a fine group of Cypripediums.

Silver-Gilt Medals were awarded to A. Hanmer Esq., Buxton (gr. Mr. G. Giles) and Mrs. Bruce and Miss Wrigley, Bury (gr. Mr. A. Burns), for groups of Orchids.

Messrs. J. Cypher and Sons, Cheltenham, staged a group for which a Silver Medal was awarded.

ANSWERS TO CORRESPONDENTS.

Correct Labelling of Batches of Plants.—*A.* The correct method of labelling plants, whether these be species or varieties, placed in nursery lines or in pots on a greenhouse bench, is to place the label immediately behind the first plant (or in the first pot) in the first row. Continue the rows from left to right, and always commence each row from the front, otherwise mistakes are liable to be made when one variety ends and another begins part of the way along a row—unless, of course, the varieties are distinguishable at sight.

Flowers, Vegetables and Tomatos.—*Problem.* (1) A flower border can be kept in a fertile condition for a longer period without manuring than a vegetable garden, provided that both are put in a proper condition for their respective crops by trenching and manuring them before planting or sowing the same. The majority of flowers prefer a soil that is rather open by having a greater percentage of sand in it, than would be best for vegetables. Potatos are an exception, and prefer a soil that is inclined to be rich and sandy rather than of a clayey nature, so far as quality is concerned. Stems of perennial flowers should be allowed to ripen before they are cut down. By that time all the starch in excess of requirements for the production of flowers has passed down to the roots and is available to give the plants a good start in spring. All good gardeners cut off the fruiting portion of the stems so soon as the flowers are over, and thus prevent a great drain on the plants and on the soil for phosphates, potash and nitrogen required for the production of seeds. Instances are Sweet Peas, Antirrhinums, Delphiniums and other plants that produce a great quantity of seeds. Vegetables, on the other hand, require a great deal of manure every year to build up their vegetative parts, such as Cabbages, Brussels Sprouts, Cauliflowers, Leeks, Onions, Celery, etc. All these are harvested and removed from off the ground. They require a great deal of nitrogen to stimulate growth. Peas and Beans of all kinds leave the ground richer in nitrogen than it was before, but appropriate a great deal of phosphates and potash in their seeds, greater, indeed, than the soil can supply to support the heavy crops expected. If a second crop were taken off the same soil without manure, this crop would be poorer than the previous one. An inadequate rainfall must not be confused with a lack of fertility. Artificial manures are next to useless in the absence of rain or artificial watering, because moisture is necessary to carry food into the plants. A deep root-run and plenty of farmyard manure will help vegetables to endure a drought because of the moisture held by the manure, rather than the little food in it. A flower border may continue to give satisfaction for quite a number of years without manure, if properly cultivated. (2) Tomatos are, or should be, always grown in warm, sunny positions. At the end of a warm day, during a drought especially, like that of last June and July, the leaves and tips af the shoots may be seen to flag considerably. All parts of the plant were then more or less limp. The result was that the plants threw off the flowers at the joint below their stalks. Apples, Pears and Plums behave in the same way by casting the larger proportion of their fruits after they get to some size. The pollen of Tomatos is not wetted by spraying, because the flowers hang downwards, and the pollen has to fall out of the tips of the anthers by a small pore before it can be wetted. Spraying the plant stops transpiration, and the rising sap fills the cells with water and gives the whole plant its normal rigidity, and the flowers hang on.

Names of Fruit.—*E. N. B.* 1, French Crab; 2, Dumelow's Seedling; 3, Margil; *G. S.* Jolly Beggar. *Osmond.* 1, Court Pendû Plat; 2, New Bess Pool; 3, Gilliflower. *G. A. L.* Radford Beauty. *P. H. R.* 1, Peasgood's Nonesuch; 2, Trumpington. *G. H. F.* 1, Wadhurst Pippin; 2, Hormead Pearmain; 3, Bramley's Seedling; 4, Ross Nonpareil; 5, Broad-eyed Pippin. *C. W. S. G.* Vicar of Beighton. *C. R.* 1, Lane's Prince Albert; 2, Cox's Pomona; 3, Lord Burghley; Pear Beurré Diel.

Names of Plants.—*E. N. B.* Polypodium aureum.

Pelargonium Seedling. *R. F. B.* The flowers of your Pelargonium seedling are very bright and attractive, but we doubt whether the variety differs greatly from some already in commerce. In any case, it is difficult to determine a Pelargonium at this season of the year. We suggest that in due course you send flowers to one of the Pelargonium specialists. The Begonia appears to be a variety of B. semperflorens.

Rabbits and Lily-of-the-Valley. *Frognal.* Our experience with rabbits in a garden, where the neighbourhood or surroundings were infested with them was that they were troublesome in winter, when food was scarce, but that would not apply to Lily-of-the-Valley, which dies down in autumn. In spring there were Snowdrops, Daffodils, Corydalis and Doronicum Pardalianches, but these bloomed without molestation. The rabbits were most fond of Carnations, Pinks, Violas and Pansies. When there was plenty of grass, Dandelions and Clover, the rabbits did no damage in spring and summer, except in one case, where the flower garden was not fenced against rabbits. The young ones gnawed the stems of Zonal Pelargoniums and left them lying scattered about. During periods when snow covered the ground, rabbits would eat off the tops of young Spruce trees, and the bark of Beech and Laburnum, of which they are fond. Seeing that snow is seldom present in quantity in your district there would be little incentive for the rabbits to be mischievous in winter, and less in spring, when Lily-of-the-Valley commences to grow. If there is not much grass in spring in the wood it would be worth while planting some Cabbages or Kale to engage the attention of the rabbits until grass is plentiful.

Communications Received. J. O.—S. W.—M. B.—G. T. D. W. L.—H. H. G.—J. F. H.—W. B. P.—W. F.—R. K. G.—D. B.—C. E.

CATALOGUES RECEIVED.

Seeds.

Upstones, 35, Church Street, Rotherham.
Brown and Wilson, 10, Market Place, Manchester.
John Waterer, Sons and Crisp, Ltd., Twyford.
John E. Knight and Son, Wolverhampton.
Dobbie and Co., Ltd., Edinburgh.
Clibrans, Ltd., Altrincham.

John E. Knight and Son, Tettenhall Rosery, Wolverhampton.—Roses.

MARKETS.

COVENT GARDEN, Tuesday, December 29th, 1925.

Plants in Pots, etc.; Average Wholesale Prices.

(All 48's except where otherwise stated).

	s. d. s. d.
Adiantum cuneatum per doz.	10 0-12 0
—elegans	10 0-12 0
Aralia Sieboldii	9 0-10 0
Araucarias, per doz.	30 0-42 0
Asparagus plumosus	12 0-18 0
—Sprengeri	12 0-18 0
Aspidistra, green	36 0-60 0
Asplenium, per doz.	12 0-18 0
—32's	24 0-30 0
—nidus	12 0-15 0
Cacti, per tray —12's, 15's	5 0- 7 0
Chrysanthemums, pot grown, in variety, 48's, per doz.	15 0-24 0
Crotons, per doz.	30 0-45 0
Cyclamens, 48's in variety, per doz.	24 0-30 0
Cyrtomium	10 0-25 0
Erica hyemalis —48's, per doz.	24 0-30 0
—60's, per doz.	15 0-18 0
Erica gracilis, 48's, per doz.	24 0-30 0
—nivalis, 48's, per doz.	24 0-36 0
above varieties in 60's, per doz.	12 0-15 0
—in Thumbs, per doz.	9 0-10 0
Marguerites, 48's per doz.	18 0-21 0
Nephrolepis in variety	12 0-18 0
—32's	24 0-36 0
Palms, Kentia	30 0-48 0
—60's	15 0-18 0
Pteris, in variety	10 0-15 0
—large, 60's	5 0- 6 0
—small	4 0- 5 0
—72's per tray of 15's	2 6- 3 0
Roman Hyacinth, on bulbs, per doz.	4 6- 5 0
Solanums, 48's, per doz.	15 0-18 0

Cut Flowers, etc.: Average Wholesale Prices.

	s. d. s. d.
Adiantum decorum, doz. bun.	18 0-21 0
cuneatum, per doz. bun.	12 0-15 0
Arums (Richardias) per doz.	12 0-15 0
Asparagus plumosus, per bun., long trails, 6's,	2 0- 3 0
med. sprays	1 6- 2 6
short	0 9- 1 3
—Sprengeri, bun long sprays	1 6- 2 0
med. „	1 0- 1 6
short „	0 4- 1 0
Bouvardia, white, per doz. bun.	15 0-18 0
Camellias, white per box, 12's	3 6- 4 6
Carnations, per doz. blooms	6 6- 8 0
Chrysanthemums white, large blooms, per doz.	7 0- 9 0
—yellow, large blooms, per doz.	5 6- 6 0
pink, large blooms, per doz.	7 0- 9 0
—bronze, large blooms, per doz.	7 0 -9 0
above colours— —medium blooms, per doz.	5 0--6 0
—white spray per doz. bun.	36 0-42 0
—yellow, spray per doz. bun.	36 0-42 0
—pink, spray, per doz. bun.	27 0-36 0
—bronze, spray, per doz. bun.	30 0-36 0
Croton leaves per doz.	1 9- 2 6
Daffodils, single, per doz. bun.	36 0-42 0
Fern, French, per doz. bun.	10 0-12 0
Freesia, white, per doz. bun.	5 0—6 0
French Flowers— —Acacia (Mimosa) per doz. bun.	15 0-18 0
—Anemone De Caen, per doz. bun.	18 0-24 0
—Eucalyptus per pad	5 0--6 0
French Flowers— —Marguerites yellow, per doz. bun.	4 0--4 6
—Narcissus, Paper White, per doz. bun.	10 0-12 0
—Narcissus Soliel d'Or, per doz. bun.	12 0-15 0
—Parma Violets, per bun.	10 0-12 0
Ranunculus, scarlet, per doz. bun.	12 0-15 0
—carmine, per doz. bun.	12 0-15 0
—orange, per doz. bun.	24 0-30 0
Heather, white, per doz. bun.	10 0-12 0
pink, per doz. bun.	9 0-12 0
Honesty, per doz. bun.	18 0-30 0
Hyacinths, Roman, per doz. bun., 12's	21 0-27 0
Lilac, white per doz. sprays	8 0--9 0
Lilium longiflorum long, per doz.	5 0--6 0
—speciosum album, long, per doz.	4 0--5 0
—short, per doz.	3 6--4 6
—speciosum rubrum, long, per doz. blooms	4 6--6 0
—short, doz. blooms	3 0--3 6
Lily-of-the-Valley, per doz. bun.	30 0-36 0
Orchids, per doz. —Cattleyas	24 0-30 0
—Cypripediums	5 0--7 0
Poinsettia, per doz. blooms	12 0-24 0
Roses, per doz. blooms, Richmond	12 0-15 0
—Liberty	12 0-15 0
—Madame Butterfly	15 0-18 0
—Madame Abel Chatenay	10 0-12 0
Smilax, per doz. trails	2 0--2 6
Tulip, single— —white	24 0-36 0
—yellow	30 0-36 0
—scarlet	24 0-36 0
—pink	30 0-36 0
—terra cotta	30 0-36 0
Violets	4 0--6 0

REMARKS.—The supplies generally were fairly plentiful at Christmas, and the only subjects that advanced greatly in price were Carnations and Roses. These reached their highest value on Tuesday and Wednesday last, possibly owing to the increased demand from the provinces. Richardias (Arum), although in moderate demand, remained firm in price. Lilium longiflorum declined in value before the market closed on Christmas Eve, the supplies exceeding the demand. Tulips and Hyacinths on bulbs met with a ready demand from the previous week. More cut Tulips were available last week, pink and yellow blooms being exceptionally fine. There was also a good display of Poinsettias. Daffodils and Christmas Roses were scarce and many orders for these blooms could not be accepted. Small consignments of Narcissus Soliel d'Or from Guernsey arrived in fine form, also some single Anemones, Violets and Smilax. On Thursday, Violets from home growers reached the highest figure this season. All supplies of cut blooms from France were very short and advanced considerably in price, especially for Anemone, Narcissus, single and double Violets, Ranunculus, Acacia (Mimosa), and Marguerites were unusually scarce, and the quality, generally, was poor, but prices were exceedingly high for this time of the year. Supplies from this quarter are likely to be limited for some days.

Vegetables: Average Wholesale Prices.

	s. d. s. d.
Artichokes, green per doz.	3 0--4 0
Asparagus— —English	3 0--6 0
—Paris Green	8 6--9 0
—Sprue	1 3--1 6
Beans— —Madeira, per basket	2 0--5 0
—Finest	3 6--5 0
—Best	2 6--3 0
Beets, per cwt.	6 0--8 0
Cabbage, per tally	6 0-10 0
Celery, per doz. fans	16 0-20 0
Cauliflowers— —St. Malo, per crate	6 0--8 0
Carrots, per bag	6 0--8 6
Chicory, Belgian, per lb	0 3--0 4
Cucumbers, per doz.	18 0-30 0
Endive, per doz.	2 0--3 0
Horseradish, per bundle	1 3--2 0
Lettuce, round, per crate	4 0--6 0
—French Cos, per doz.	6 0--7 0
Mint forced	4 0--6 0
Mushrooms, —French	1 0--2 0
—cups	2 6--3 0
—Broilers	1 0--2 0
Onions— —Dutch	7 0--7 6
—English, per cwt.	7 6--8 0
—Valencia	9 0-10 0
Parsnips, per cwt.	6 0--7 0
Potatos— —King Edward, per cwt.	6 6--8 0
—others	4 6--6 0
New Potatos— —Azores, per case	20 0-30 0
—Canary Island	8 0-18 0
—Guernsey	0 6--1 0
Rhubarb, forced per doz. bundles	3 0--4 0
Seakale, per punnet	3 0--3 6
Sprouts, per ½ bag	3 0--6 0
Savoys, per doz.	1 6--2 6
Tomatos, English, per strike— —pink, new crop	10 0-12 0
—Canary Islands	6 0-18 0
Turnips, per cwt.	5 0--6 0

Fruit: Wholesale Average Prices.

	s. d. s. d.
Apples, English, per ½-sieve— —Cox's, special	10 0-12 0
—best	6 0--8 0
others	3 0--4 0
—Allington Pippin	2 0--3 0
Apples, Cooking— —Bramley's Seedling	4 0- 7 0
—Lane's Prince Albert	4 0--6 0
—Blenheim Pippin	4 0--8 0
Newton Wonder per bushel	4 0--6 0
Apples, American —Jonathan	13 0-14 0
—Californian	12 0-18 0
—Oregon Newtown	17 0-19 0
—York Imperial barrels	28 0-32 0
—Spitzenberg	15 0-16 0
Apples Nova Scotia— —King's	18 0-23 0
—Blenheim, barrels	16 0-21 0
—Baldwin	17 0-21 0
Bananas	17 0-27 6
Brazils, per cwt.	90 0-100 0
Chestnuts, Italian, per bag	20 0-25 0
—French, per bag	15 0-32 0
Cobnuts, per lb	1 2--1 3
Dates (Tunis), per doz. cartons	4 0--5 0
Grapes, per lb— —Alicante	1 6--2 6
—Guernsey	0 10--1 6
—Colmar	1 6--2 6
—Muscat	5 0-12 0
—Almerian, per barrel	15 0-27 6
Belgian— —Muscats	5 0--6 0
Black	1 6--2 0
Grape Fruit, —Jamaica	16 0-20 0
—Isle of Pines	21 0-22 6
—Florida	27 6-32 6
Lemons, Messina, per box	16 0-22 0
—Malaga	18 0-22 0
Pines	3 0--5 6
Pears, Californian— —D'Anjou	18 0-24 0
—Nelis	24 0-36 0
—Comice, per ½ case	15 0-20 0
South African Oranges	12 0-18 0
—Denia	12 0-20 0
—Jamaica	12 0-16 0
—Murcia	12 0-20 0
—Malaga	12 0-23 0
Walnuts, French, per bag	7 0--8 0
—Corner	40 0-45 0

REMARKS.—The week following Christmas is usually quiet from a business point of view, and this one has been no exception. There was no great rush of trade during the Christmas week, but there was a steady volume of business all through, and results have no doubt been satisfactory. Ample stocks of Apples from the United States and Canada are on hand, and quotations for these fruits are inclined to be easier. The enquiry for English Apples just now is very quiet, and even Cox's Orange Pippin is not in demand. A week or so should see some slight improvement in this section. Hothouse Grapes continue to be in fair demand, the New Year festivities helping in this direction. Oranges are plentiful and cheaper. Bananas remain steady and their prices show little or no fluctuation. Forced vegetables are a fair trade, French Beans in particular being scarce and dear. Hothouse Potatos and Peas are, however, both cheaper. New Potatos from the Azores, Canary Islands and Algeria are in poor demand. Mushrooms, as is usual at this season of the year, show considerable variation in prices. Somewhat heavy supplies from Paris also help to complicate matters, from the home producer's point of view. Home-grown, forced Asparagus is meeting a poor enquiry, but French (Paris Green) is selling fairly well, the lack of colour being the detrimental factor of the English stems. A few Cucumbers are still coming to hand but they are dear. Tomatos, mainly from the Canary Islands, are not meeting a good reception by the buyers just now, but some improvement is looked for. French salads, such as Lettuces, Batavian Endive and Chicory from Belgium are all selling fairly well considering the large quantities that are arriving. Trade in old Potatos is fairly good, with ample stock on offer at steady price level.

GLASGOW.

A good business was done in the cut flower market during Christmas week, when good quality blooms were scarce and dear. Nearly all the local growers of Chrysanthemums have finished for the season and the trade is now dependent on English produce. Medium-sized blooms of Duckham made 4/- to 5/- per dozen; large 5/- to 6/-; Winter Cheer, 1/8 to 3/4; Niveus and Wilcox, 1/8 to 2/6; large, 2/6 to 3/-; Sunshine and Ada Brooker, 2/- to 3/-; and Heston White, 1/8 to 2/8. Roses were worth from 7/- to 10/- per dozen, and Carnations, from 7/- to 9/-. White Hyacinths made 10d. to 1/6. Lily-of-the-Valley 2/- to 2/6; English Violets, 3/-; Narcissi, 4/- to 6/- per dozen bunches; small French Ranunculus, 1/- to 1/6; Smilax, 1/6 to 2/-; and Asparagus Fern, small, 6d. to 1/-, large, 1/- to 1/6; Lilium longiflorum (Harrissii) and Arum Lilies ranged from 8/- to 10/- per bunch, and Lilium speciosum rubrum from 3/6 to 5/-. Blooms on bulbs were plentiful. Prices for White Hyacinths fluctuated between 2/- and 3/- each; Tulips, medium-sized, 1/9 to 2/6, and large, 3/- to 4/-. Solanums in pots averaged 1/3 each, and Dutch Aspidistra realised from 9d. to 1/- for green, and 1/- to 1/3 for variegated forms. Holly supplies were short of the demand, and buyers conceded 7/- per box, while Mistleto varied from 5/- to 6/- per stone.

The feature of the fruit market was the slump in the value of Oranges. Cases of 714's, which were quoted a week ago at 24/- to 28/-, dropped to 16/- to 19/-, while 420's only made 17/- to 24/-, as against 24/- to 35/-. Other counts were proportionately cheaper, 300's being 11/- to 14/-, compared with 14/6 to 20/-, and 360's, 9/6 to 11/-, against 12/- to 14/6. Murcia 360's were worth from 9/- to 10/6, and 300's 10/- to 14/-. Mandarin 50's 1/6; 55's, 1/8 to 1/10; 60's, 2/- to 2/3; Lemons, 300's 14/6 to 18/-. Jamaica Grape Fruit sold at 22/- to 24/6; Porto Rico, 25/- to 28/-; and Blue Goose, 30/-. There is still a good deal of wastage in Almeria Grapes, which were worth anything from 10/- to 26/- per barrel. Prices of American Apples generally displayed a downward tendency for case fruit, and the lower grades of barrels were also cheaper. Quotations were as follow:—Winesap, 12/6 to 16/- per case, Delicious, 11/6 to 16/6; Oregon Newtown 12/6 to 18/6; Spitzbergen, 11/- to 14/-; Jonathan, 10/6 to 14/-; Winter Banana, 12/- to 14/-; and Rome Beauty, 10/6 to 12/6. Canadian Kings, 28/- to 32/- per barrel; Spig. 24/- to 28/-; Greening, 28/- to 32/-; and Baldwin, 24/- to 28/-. English grown Bramley's Seedling realised 16/- to 20/- per cwt.; Lane's Prince Albert, 14/- to 18/-.

LAW NOTE.

DISPUTED SCOTCH SEED POTATO CONTRACT.

AN important decision, reversing the finding of the Lord Ordinary, was given by three judges of the First Division of the Court of Session, on Friday, in an action raised by Messrs. R. and S. Paton, Ltd., Potato merchants, 34, North Bridge, Edinburgh, against Robert Wyllie, farmer, The Heugh, North Berwick, in which the sum of £1,467 was claimed as damages for breach of contract. The pursuers, it was averred, purchased from the defender four hundred to five hundred tons of King Edward seed Potatos, and it was a condition of the sale that the Potatos were to be properly dressed, and any bad or wrong tubers kept out. It was the latter point that was in dispute. Relying on the contract, the pursuers sold the seed Potatos to various customers, who subsequently claimed damages on the ground that the Potatos were mixed and included a large proportion of tubers which were not true King Edward seed. In consequence, the pursuers had made reparation amounting to £1,000 to the sub-customers.

In the Outer House, Lord Ashmore decided in favour of the defender, and found him entitled to expenses. He was of opinion that the defender did not sell pure King Edward Potatos, and that he did not agree that in the process of dressing he would keep out the wrong ones, or rogues, as they were called. He also found that the representation made by the pursuer to his customers was done without the authority, expressed or implied, and without the knowledge of the defender.

A reclaiming note was presented to the higher court, and the three judges of the First Division have unanimously recalled the Lord Ordinary's interlocutor, and sent the case back for the purpose of dealing with the question of damages. Their lordships were of opinion that the contract was for the purchase of goods by description, and not for the purchase of mixed Potato seed

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No. 2037.—SATURDAY, JANUARY 9, 1926.

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AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 38.1.

ACTUAL TEMPERATURE—
The Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, January, 6, 10 a.m. Bar. 30.0. Temp. 53°. Weather, Sunny.

Variety Trials and Tests.

EVERYONE who considers the great and continuous attention which is paid to the cropping values of new and old varieties of fruits and vegetables must be puzzled and baffled by the diversity of opinion which is prevalent with respect to the merits of the several varieties. Ask, for example, a dozen experienced growers what is the best or most profitable variety of Black Currant, Gooseberry, Apple or other fruit and there will be assuredly no unanimity in the answer. To anyone accustomed to the vagaries of living things this diversity of opinion will seem natural. Different varieties of one and the same kind of plant behave differently under diverse climatic and soil conditions. Some come earlier into bearing and some are more prone to disease, and again, some respond to pruning in one way and some in another. Therefore, in view of these and similar facts, the grower rightly enough comes to his own conclusion on the subject of suitable and profitable varieties and is inclined, also naturally enough, to adopt a cautiously conservative attitude with respect to that subject. This no doubt is well enough and there can be no question, but that on the whole the better varieties tend to survive in cultivation, as in Nature, and the poorer varieties tend to drop out of cultivation. But the numerous trials of varieties that have been made during the past ten years and more—at the various fruit stations, and at Wisley and elsewhere—all seem to indicate that if we only could know which varieties to grow on our land, our cropping results would be markedly improved. The indications which emerge from these trials however, whilst they whet our appetite for more precise knowledge, rarely succeed in supplying it. This defect is, let it be said, no reflection on the stations making the trials. The trials and the records are made, as we have often observed, with the greatest care and therefore the fact that no consensus of opinion exists with respect to the best varieties must be due to one or both of two things. Either the vagaries of vegetation already referred to are so great that no trials can be of any great value, or the trials themselves are imperfect. Since the former view can lead only to the conclusion that variety trials are of very limited value, we will ignore it and follow up the other suggestion, namely, that variety trials of fruits, and it may be of vegetables, are, as at present generally conducted, not calculated to yield conclusive results. Fortunately for the usefulness of this line of thought the results of variety trials recently made with respect to one kind of fruit, namely, Black Currants, have been subjected to a very searching analysis by the investigators who conducted the trials and, as a consequence, certain conclusions with respect to the ordering of variety trials which are of capital importance, both to growers and experimenters, have been reached. The variety trial to which we refer* was carried out at the East Malling Research Station. In the course of the trial, which at the time of publication of this report had been carried on for four years, certain results of definite importance to growers were established. The chief of these results is that of the varieties tried, French, Seabrook's, Boskoop, Goliath, and Baldwin, the last named variety proved itself to be far in advance of all the others with respect to yield and value of crop. This, however, important though it be, is not our immediate concern. What does concern us and all interested in the advancement of horticulture is the conclusion to which the East Malling investigators have come with respect to the all important subject of what constitutes a valid trial. Those who desire to study the argument in detail should refer to the original memoir. Here we can only indicate the value of the argument and the conclusion which is reached. When a limited number of each variety of Black Currant was tested it was discovered, by subjecting the cropping results to mathematical analysis, that observed differences of yield might or might not have a real significance. A distinctly larger yield on the part of one variety might mean that it is in fact a better cropper than one which gave a somewhat smaller yield and it might mean nothing of the kind. The problem therefore is to distinguish between results due to chance and those due to the natural thriftiness of the varieties. Here again mathematical analysis supplies a means of diagnosis. As the number of plants of each variety brought into the trial increases, the hazards of chance tend more and more to cancel out, just as you may toss a penny a few times and have a run of heads or tails; but as the number of experiments of this kind is increased the proportion of heads to tails approaches more and more nearly to unity. It therefore becomes the first duty of everyone engaged in a variety trial to ascertain what is the least number of specimens of each variety included in the trial which will suffice to make chance results negligible from a practical point of view. To eliminate chance altogether from taking a hand in the result is neither practicable nor necessary. For instance, as the authors show, to demonstrate a difference of one per cent between two varieties would necessitate the growing of over 5,000 specimens of each kind. But in practice no one cares about one per cent and so such a counsel of perfection need not be sought. A ten per cent difference of yield is, on the other hand, well worth any one's while. It means two hundredweights to the acre on a one ton crop. This measure of accuracy may be obtained if the number of bushes of each variety grown in the trial is 57. Where the number of varieties to be tested is not great, so many bushes as, say, 60 of each kind, although considerable, is by no means an unmanageable number. If that number of uniformly treated plants be used the experimenter is justified in attributing significance to results which differ by more than ten per cent, but not to smaller differences. If, on the other hand, he required to achieve a greater precision—say of five per cent—he needs must grow some 228 specimens of each variety. Here, then, are facts which, as we are convinced, will lead immediately to a beneficent revolution in the way of conducting horticultural variety trials. We have all been content to work with an arbitrary and generally limited number of plants—quite useless, and a waste of time as the events have proved. With the knowledge adduced by the East Malling investigators, all who engage in variety trials must, as their first duty when setting out the results, give the numbers of plants used and the significance to be attached to the results which are obtained experimentally. The Royal Horticultural Society, so long and so honourably known for its variety trials, will no doubt take the lead in drafting rules of guidance in such trials so that all who engage in that valuable work may know what should be the procedure that must be adopted if the results are to be of value or merely to "add to worthless numbers," "worthless numbers." In the case of vegetable trials—other than Potato trials, which are already conducted on a scientific basis—seedsmen and raisers of new varieties will doubtless take account of these methods of testing the validity of results and apply them in their routine work. So, again, no doubt, will the R.H.S. For although it is true that many other imponderable qualities have to be taken into account—quality, size, flavour, and the like—cropping yield can never be disregarded and to obtain a just measure of yield, a variety trial must be so conducted as to make negligible the distracting intermeddling of chance.

Trials at Wisley in 1926.—The Royal Horticultural Society invited entries for the following trials to be carried out during 1926, in the experimental gardens at Wisley, viz., Culinary Peas (mid-season varieties only), Kohl Rabi, Cabbages for spring sowing, Savoys, Celeriac, maincrop Potatos, Aubrietias, and the following annuals:—Calandrinia, Cosmea, Everlasting Flowers, Linum, Nemesia, Lavatera, Nigella, Nemophila, Portulaca, Sweet Sultan and Viscaria. Seeds, tubers and plants for these trials should be sent so as to reach Wisley by January 31, 1926. They should be addressed to The Director, R.H.S. Gardens, Wisley, Ripley, Surrey (Goods via Horley Station, Southern Railway), accompanied by an entry form (obtainable from the Director) and duly filled up.

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* Black Currant Variety Trials: Reliability of Results. By R. G. Hatton, N. H. Grubb and R. C. Knight. *Journal of Pomology.* Vol. IV. Parts 3 and 4.

Malham Cove marred.—By the fall of some three hundred tons of rock the beautiful glen known as Malham Cove, near Settle, Yorkshire, has been greatly marred. The cove rises in sheer limestone cliff from which the River Aire, has its source in a cavern, and was the favourite haunt of John Ruskin and Charles Kingsley. The dislocation of the rock was due to the recent frost, a portion of the higher ledge of the cliff striking the lower ledge in falling and bounding thence on its way down the steep hillside, carrying trees with it in its course. The largest fragment of rock is said to weigh some one hundred tons.

Rhododendron Society's First Show.—Since the time, now long ago, when there used to be an annual (non-competitive) exhibition of Rhododendrons in the Royal Botanic Society's gardens, at Regent's Park, there has been no exhibition devoted exclusively to these handsome, flowering shrubs. Now, however, the cult of the Rhododendron has become fashionable and extensive, encouraged by the beauty and usefulness of garden varieties and certain species, and also by the introduction from China of an extraordinary number of species, many of which are still rare in cultivation or have not yet reached the flowering stage in this country. The desire to be the first to introduce or to flower a new species is quite understandable, and probably the honour of being the first to flower a new species of Rhododendron is not less than that attaching, say, to the first flowering of Odontoglossum crispum or Dendrobium nobile, and no doubt the possible attainment of such honour has had not a little to do with the recent and widely spreading cult of the genus, to the formation of the Rhododendron Society and so to the first Rhododendron show organised by that Society. The show will be held at the Royal Horticultural Society's Hall, Vincent Square, Westminster, on Tuesday, April 27, and a schedule of forty-eight classes has been provided. The two principal classes are for groups of Rhododendrons, one restricted to the trade, and the other to amateurs; then follow classes for twelve species, twelve hybrids, three species, three hybrids, the best species, the best hybrid, and for single trusses of R. Falconeri, R. Wightii, R. argenteum or grande, R. calophytum, R. lacteum, R. fictolacteum, R. Aucklandii or Griffithianum. R. arboreum (red), R. arboreum (any other colour), R. niveum, R. campanulatum, R. Fortunei, Houlstonii, or any form of decorum; R. Davidii, Fargesii, haematocheilum, orbiculare or oreodoxa; R. pachytrichum or strigillosum; R. campylocarpum, croceum or Wardii; R. Thomsonii; R. haematodes or sperabile; R. neriifolium, R. rubignosum, R. Augustinii, and R. chartophyllum, Davidsonianum or yunnanense. There are classes for Chinese or Himalayan alpine species; for hybrids from given species; for plants lifted from the open ground, or in pots; for hardy hybrids in commerce; and for both deciduous and evergreen shrubs or trees, in flower, suitable for growing with Rhododendrons. It occurs to us that the schedule lays so much emphasis on species that there is little opportunity for an amateur with a small garden, and who possesses only garden varieties, to compete; but, of course, this limitation may be due to design and the Hon. H. D. McLaren, Lionel de Rothschild, Esq., J. B. Stevenson, Esq., E. H. Wilding, Esq., and P. D. Williams, Esq., who constitute the Committee, may have felt that the R.H.S. Hall would not be large enough to hold all the exhibits unless such limitations were imposed. Given suitable weather the show should be one of exceptional interest and provide an excellent opportunity of inspecting the flowers of many choice and rare species of Rhododendron.

Sir John Bretland Farmer, F.R.S., D.Sc.—The inclusion of the name of Prof. Farmer in the list of New Year's Honours has given great pleasure in botanical and horticultural circles, for the new knight is as much esteemed for his charming personality as for the valuable scientific work he has accomplished during his busy life, much of which has had a direct bearing on horticulture. Moreover, he is a keen amateur gardener, especially interested in alpines, and was largely responsible for rescuing the old Chelsea Botanic Garden from the condition into which it had fallen and for placing it again in the important position it occupied so honourably and usefully in bygone years. His long association with the Imperial College of Science and Technology, South Kensington, as professor of Botany and Director of the Biological Laboratories, is well-known to most of our readers; and he has filled this position with a dignity and brilliance which has made his name honoured in scientific circles the world over; he has been a Governor of the college since its foundation in 1907. But his activities have extended to further fields. For five years he has served as a member of the Advisory Council to the Lord President of the Committee of the Privy Council on Scientific and Industrial Research, and during that time organised and was first chairman and director of the Forest Products Research Board. He has taken an active part in establishing a research station for the Imperial Cotton Growing Corporation, and in January, 1925, he visited the West Indies to report on an area for this station. The recommendations he made, in conjunction with Mr. Killby, were all adopted, and have led to the purchase and equipment of a site of sixty acres in Trinidad. Sir John has been a Governor of the Imperial College of Tropical Agriculture, Trinidad, from its inception, and he had much to do with the earliest stages of the organisation of that college. In addition, he has served on a number of committees appointed by the Secretary of State for the Colonies, including one appointed rather more than a year ago, under the chairmanship of the late Lord Milner, to report on the recruitment and training of officers in the agricultural services of the Colonies. He is a Governor of the Imperial Institute and also a Commissioner of the 1851 exhibition. The much-prized Royal Medal was awarded to Sir John Bretland Farmer on the recommendation of the Council of the Royal Society in 1919, and amongst his other honours is the degree of LL.D. (Hon.) conferred on him by the University of Edinburgh in 1922. An erstwhile Editor of *The Gardeners' Chronicle*, it is peculiarly appropriate that his portrait should appear on this occasion in the Journal with which he was once so intimately associated. Our readers will join with us in congratulating Professor Farmer on the receipt of so signal and well-merited an honour.

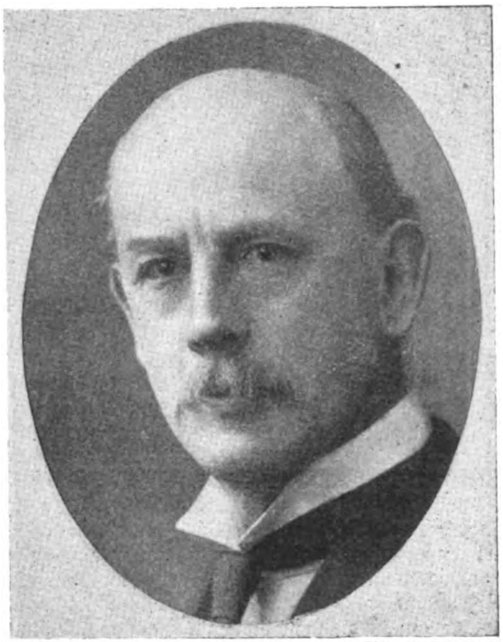
Photo by Lafayette.

SIR JOHN BRETLAND FARMER.

Webster's Foresters' Diary and Pocket Book.—This familiar red-covered diary is one of the most useful of its kind to foresters, landowners, nurserymen, gardeners, etc., for it contains a host of valuable information relating to trees and shrubs, and especially from a forestry aspect. Much of the text of the issue for 1926 has been revised, and largely re-written by Mr. A. D. C. Le Sueur, Consultant in Forestry, and Forestry Advisor for Burnham Beeches to the Corporation of the City of London. There is a diary of practical operations in the forest and woodland for each month of the year, and this is followed by short articles on a multitudinous variety of subjects, such as the removal of tree stumps; plants for hedges; measurement of timber; preservation of timber by creosoting, etc.; a list of the largest trees in the Kingdom; trees and shrubs for coast protection; tables of weights and measures; notes on forestry law, etc. The diary gives a list of the principal foresters and assistant foresters in the country, and this is followed by the calendar and spaces for notes; the pages are five-and-a-quarter inches by three-and-a-quarter inches, allowing ample room for notes. The *Foresters' Diary* is issued by Messrs. W. Ryder and Son, Ltd., 8, Paternoster Row, E.C.4., price 3/6 net.

Fertilisation of the Primrose.—At a recent meeting of the Linnean Society, Mr. Eric Marsden Jones contributed a note on the pollination of the Primrose. In this he stated that arguments in favour of the pollination of Primula vulgaris, Huds., led to observations, by day and night, in a wood at Potterne, Wiltshire, in order to ascertain with the greatest degree of accuracy the part that day- and night-flying insects might play in the pollination of this plant. A series of systematic observations were made by day, between April 8 and May 15, 1925. The length of time spent in observing was in all twelve-and-a-half hours, and the number of important species of insects seen pollinating frequently was five. They comprise Bombus hortorum; Anthophora pilipes, ♂ and ♀; Bombylius major, ♂ and ♀; Bombylius discolor, ♂ and ♀; Rhingia campestris, ♂ and ♀. All these have a proboscis long enough to pollinate. The night observations extended from April 9 to May 15, 1925. Fifteen, visits were paid to the wood at various hours covering the entire night from 8.15 p,m. to 4.40 a.m. The time spent was sixteen hours twenty minutes, and the only visitors seen were Meligethes erythropus, Tachyporus salutus, and Forficula auricularia, which are of no value from a pollinating point of view. Besides these direct observations, a control experiment was also carried out. Two blocks of fifty plants each were covered alternately day and night. The patch from which insects were excluded at night produced 343 capsules, while the one exposed by night, and from which day-flying insects were excluded, produced only five, for which there is an explanation. This experiment lasted from April 19 to May 23. A further control experiment was carried out, six plants being covered day and night; these proved to be absolutely sterile. The conclusion drawn from the direct and experimental evidence prove that diurnal insects do pollinate efficiently, and that nocturnal Lepidoptera play no part whatever in the pollination of Primula vulgaris.

Public Parks and Gardens of Paris and Brussels.—The wider outlook which comes as a result of travelling in other countries than one's own is not so fully appreciated by British employers as it is by our continental friends. However, certain commercial firms understand the value attaching to travel, and they send promising men on visits of inspection to countries where industries similar to their own are conducted, and they regard the cost of such visits as a good investment. Long years ago, the Kew authorities appreciated the advantages to be derived from travelling abroad, and so Mr. Nicholson, Mr. Watson, Mr. Bean and other members of the garden staff—apart from the Directorate—have been sent at various times to other countries to obtain information and inspiration. If we remember rightly, the Glasgow Corporation sent the late Mr. Whitton to the continent on more than one occasion, and Edinburgh gave the late Mr. McHattie special leave for a similar purpose. Quite recently the Brighton Corporation directed its Chief Parks official, Mr. B. H. Maclaren, to visit the principal municipal parks, gardens and nurseries of Paris, and the parks and botanic gardens of Brussels. The visit was made last autumn, and a few weeks ago Mr. Maclaren presented his report to his Parks and Gardens Committee. The report is a model of conciseness and it is finely printed on excellent paper. In Paris, Mr. Maclaren visited the Bois de Boulogne, Champs Elysées, Champs de Mars, Tuileries Gardens, Jardin des Plantes, the Luxembourg Gardens, Jardin d'Acclimatation, Jardin de l'Observatoire, Bagatelle, Parc Montsoury, Parc Monceaux, the Buttes Chaumont and the Bois de Vincennes. He also visited several horticultural establishments and the parks and gardens at Versailles, St. Cloud and Fontainbleau. In Belgium, Mr. Maclaren's tour of inspection was limited to the Botanic Gardens, the park at Brussels, and the beautiful Bois de la Cambre. Antwerp should have been included in the itinerary. Mr. Maclaren generously acknowledges the assistance he received from the horticulturists of Paris and Brussels, and he makes a few comparisons between Brighton's open spaces and those of the cities he visited. We feel sure that Brighton will profit by Mr. Maclaren's visit to Paris and Brussels, and we suggest that other municipalities would do well to follow the example of Brighton in this respect.

Gold Medal Awarded to an American Pomologist.—The Massachusetts Horticultural Society has awarded its Large Gold Medal to Dr. Walter G. Kendall for his work in promoting interest in fruit culture and in the exhibition of fruits. There has not been a year in almost two decades in which Dr. Kendall has not made an exhibit at some exhibition of the Society which has awarded him the Gold Medal. For two successive years, in 1910 and 1911, he won the Silver Medal of the Society for the best garden visited by the Garden Committee.

Retirement of Mr. W. H. Miles.—This noted gardener is retiring from Lydney Park Gardens, of which he has had charge for a period of over twenty-four years. He came to Lydney Park as gardener to the late Charles Bathurst, Esq. —who was known as "The Squire"—the father of Lord Bledisloe, and was highly esteemed by all his family. Extensive alterations were carried out and Mr. Miles gained fame as a skilful cultivator and successful exhibitor. On the occasion of his retirement, Mr. Miles has been the recipient of valuable presents from Lord and Lady Bledisloe, from other members of their family, from the estate employees and local friends. Our readers will remember him as a contributor to these pages, and will be glad to learn that his son, Mr. H. W. Miles, M.Sc., Kirton, is a successful biologist. Mr. W. H. Miles is succeeded in the charge of Lydney Park Gardens by his friend, Mr. George Emmett, of Hampton Court Gardens, Hereford.

Tithe Act, 1925.—The Minister of Agriculture and Fisheries desires to state that the main provisions of the Tithe Act, 1925, which received the Royal Assent on the 22nd December, including the stabilisation of the annual value of tithe rentcharge at £105 per cent., and the transfer of ecclesiastical tithe rentcharge to Queen Anne's Bounty, do not come into force until the "appointed day"—a date not earlier than the 6th April, 1926—to be fixed by Order in Council.

It is anticipated that the "appointed day" will for these purposes be the 31st March, 1927, but ample notice will be given of the final decision on this point. The Act, therefore, makes no immediate alteration in the legal ownership of tithe rentcharge or in the bases of computation of the sums payable in respect of annual tithe rentcharge. For the present, the sum of £109 3s. 11d. continues to be payable for every £100 tithe rentcharge (par on commuted value) and half-yearly instalments of tithe rentcharge, which became payable on January 1, will be calculated on that basis.

New Year's Honours.—In the list of New Year's Honours few names occur of special interest to horticulturists and botanists. A well merited knighthood has been conferred upon Prof. J. Bretland Farmer, F.R.S., for special services rendered in scientific and industrial research, botany and agriculture; Baron Bledisloe, K.B.E., Parliamentary Secretary to the Ministry of Agriculture, becomes a member of the Privy Council; Mr. Samuel Simpson, Director of Agriculture in the Uganda Protectorate, receives the award of C.M.G., and Mr. William Waters Butler, Birmingham, has a baronetcy. Sir. W. W. Butler is an ardent horticulturist, owns a fine collection of Orchids and is a member of the council of the Birmingham University. He was at one time a member of the Royal Horticultural Society's Orchid Committee.

Mr. Collingwood Ingram's Visit to Japan.—Mr. Collingwood Ingram, of The Grange, Benenden, Kent, whose unique, Japanese flowering-Cherry is illustrated and described in the present issue (see p. 27), is starting on a visit to Japan for the special purpose of studying the flowering Cherries—a group of interesting and beautiful plants in which he has taken great interest for many years.

Appointments for the Ensuing Week.—Monday, January 11: United Horticultural Benefit and Provident Society's meeting. Tuesday, January 12: Royal Horticultural Society's Committees meet; Jersey Gardeners' Society's meeting Wednesday, January 13: Glasgow and West of Scotland Horticultural Society's lecture; Wimbledon Gardeners' Society's meeting. Thursday, January 14, Crowthorne Horticultural Society's lecture. Friday, January 15: Orchid Club meeting. Saturday, January 16: Newcastle Horticultural Mutual Improvement Society's annual dinner.

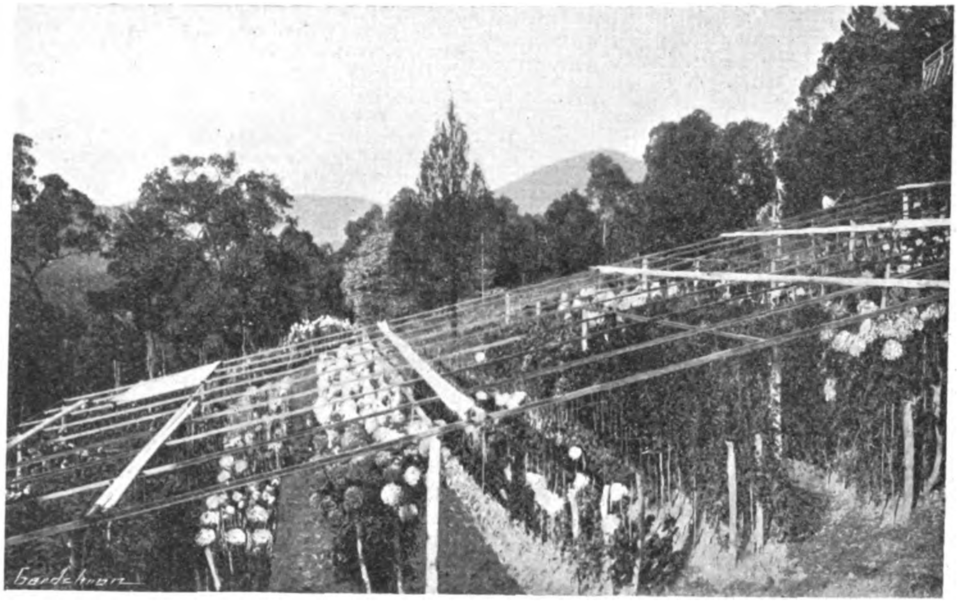

FIG. 10.—MR. THOS. POCKETT'S CHRYSANTHEMUMS IN AUSTRALIA.
(see p. 24.)

"Gardeners' Chronicle" Seventy-five Years Ago.—*The Great Exhibition Building of* 1851.—If the marvellous building now rearing its head in Hyde Park has no other merit than that of exhibiting what can be done in England under the influence of a fixed resolution, it would scarcely claim a notice in this part of our Journal; however worthy of admiration it might be, its structure would necessarily be left for discussion elsewhere. But it will be found, beyond all doubt, to have a most important bearing upon horticulture, as, indeed, its garden origin suggests. When Mr. Paxton constructed at Chatsworth the Victoria House, fully described in our last volume, page 548, he laid the foundation of a series of changes in the plans of conservatories, the end of which will doubtless be the gradual removal of all those lean-to, span-roofed or upright fronted plant houses with which gardens are now decorated. It will probably be found too, that he will have introduced into very general use those winter gardens which so many have sought for and so few have found. The difficulty that has hitherto been experienced in making a winter garden has been its expense. The very term winter garden implies the enclosure of a considerable area beneath a glass roof; but the moment a large area is spoken of, the architect casts his eyes upwards, and insists upon the height bearing a certain proportion to the base. And this compels the further introduction of costly heating apparatus; so that between massive brickwork, ponderous iron work, and a labyrinth of hot-water-pipes, it is fortunate if the building is prepared for receiving plants at a cost of less than a pound sterling per superficial foot of the area. We entertain no doubt that, in general, the expense is far greater. At this rate, a plant-house, 100 feet long and thirty feet wide, would cost £3,000 at the least; and it would require nearly £44,000 to cover an acre in like manner. But when we look at the Victoria House in Hyde Park, we find that about eighteen acres are covered for less per acre than a quarter the sum above mentioned; and of this sum we apprehend that more than half has been on account of the galleries and aisles, required to produce the magnificent effect which we all so much admire. It is not heated, it is true, and for that an allowance must be made; but, giving any reasonable margin for heating, still the difference of cost is excessive. And it is to this that the attention of the country should be directed. *Gard. Chron., January* 11, 1851.

The Week's Work.

THE ORCHID HOUSES.

By J. COLLIER, Gardener to SIR JEREMIAH COLMAN, Bart., Gatton Park, Reigate.

Trichopilia.—The best known members of this very interesting genus of Orchids, and the most frequently found in Orchid collections, are T. suavis, T. coccinea, T. tortilis, T. Backhousiana and T. laxa. The majority of those mentioned will by now have completed their growths, and should be afforded only sufficient water to keep their pseudo-bulbs plump. If they are kept too moist at this period, the pseudo-bulbs and leaves will become spotted. During the plants' season of rest they should be placed in a light position in a house having an intermediate temperature, but not exposed to direct sunlight, as this would cause the foliage to assume a yellow, unhealthy colour. The necessary re-potting should be done soon after new growth commences. Orchid pans form suitable receptacles, and they should be well-drained. Use a mixture of Osmunda-fibre, chopped into short portions, and Sphagnum-moss, as a rooting medium. In re-potting, elevate the plant somewhat above the rim of the receptacle, so that when watering moisture will not settle in or around the young growths, as they rot readily. The sweetly-scented T. fragrans is sending up flower-spikes, and will soon be in bloom. This Orchid is worthy of a place in any collection. It grows well in the warmest part of the Odontoglossum house. T. rostrata will thrive under similarly cool conditions.

Brazilian Miltonias.—The principal species and natural hybrids belonging to this group, which include M. Regnellii, M. Clowesii and M. Russellianum, should be examined, and any plants that require it may be re-potted. M. spectabilis and its variety Moreliana, are best grown in shallow pans, with wire handles attached, and suspended from the roof in the intermediate house. They have a creeping rhizome and are shallow-rooting; therefore only a thin layer of compost is needed. The useless back pseudo-bulbs should be cut away, leaving only two or three behind each growing point. The plants should be kept pegged down to the soil as they extend. Overgrown specimens that have become bare in their centres may be broken up and the portions potted up afresh to form specimens of the desired size.

THE FLOWER GARDEN.

By F. C. PUDDLE, Gardener to LORD ABERCONWAY, Bodnant, Taly-Cafn, North Wales.

Annuals.—When compiling the seed order for the flower garden the selection of suitable annuals requires careful consideration. There is such a wide range to choose from that suitable annuals may be found for almost any position, and they are most useful for filling blank spaces in beds and borders. To do them full justice however, they require a border to themselves, and borders of annuals are especially useful in small gardens, and those situated near large towns, where many herbaceous plants, such as Phloxes, only languish. Where glass accommodation is limited, very interesting borders may be made entirely of hardy annuals, but the finest effect is produced when both hardy and half-hardy kinds are used. The common practice of sowing hardy annuals where they are to flower is neither necessary nor advisable, as, with a few exceptions, they transplant readily, and in gardens where room is restricted it is possible to have a display of spring flowers, and follow with annuals. Suitable kinds for such borders are:—Clarkias, Godetias, Larkspurs, Coreopsis, Nigellas, Nemesias, Asters, Phlox Drummondii, Anagallis, Lobelia ramosa, Salpiglossis, Viscarias, Alonsoas, Diascia Barberae, annual Chrysanthemums and Brachycome iberidifolia. With a selection of varieties of these kinds all the glories of artistic arrangements and pleasing colour schemes may be obtained at a very small expense. Annuals are also very useful for filling odd corners of the garden, and it is a very arid spot which will not support plants of Salvia Bluebeard and Calendula Orange King, that make an effective colour combination.

Liliums.—Importations of Japanese Lilies will now be arriving, and those destined for the flower garden will repay a little preferential treatment. To plant the bulbs, which have already been weakened by their long journey and probably bruised in transit, direct into cold, damp soil, will hasten any tendency to decay, even if they are surrounded with sand. The bulbs should be examined when they are received, badly bruised tissue cut away, and the wounds rubbed with a little fine lime. They may then be potted in a sandy compost and placed in cold frames with the pots plunged to the rim in ashes. Keep them quite cool, so that they will not be forced into premature growth, but so soon as this commences they may be planted in their permanent quarters. The two beautiful Lilies, L. regale and L. philippinense var. formosanum, may be raised easily from seeds, the bulbs flowering when from two to three years old. The seeds should be sown at once in gentle warmth, and when the seedlings are large enough, they should be pricked out in pans or boxes and grown on in a cool frame. When permanently planting Lilium regale, choose a sunny situation, but Lilium philippinense var. formosanum prefers a sheltered place in partial shade. This last is, I believe, much hardier than is generally imagined.

PLANTS UNDER GLASS.

By JOHN COUTTS, Assistant Curator, Royal Botanic Gardens, Kew.

Hippeastrums.—Plants that were plunged in a warm bed a few weeks ago are throwing up their flower scapes. If not already done a batch, according to requirements, should be placed in a warm plunge-bed. Bulbs that do not require re-potting should be selected for early flowering. It is also an advantage to select plants that were started early last year, because, having finished their growth early, they will respond the more readily when introduced to heat. Before placing them in the plunge-bed they should be soaked thoroughly at the roots and examined for mealy bug; they should then have some of the top soil removed, substituting a top-dressing of good loam mixed with a little leaf-mould and sand, and a liberal quantity of bone-meal. Plants that require re-potting should have all the soil shaken away, and decayed roots trimmed off, after examining them for mealy bug. They should be potted in a compost consisting of three parts good loam, and one-third leaf-mould and clean, sharp sand, with a six-inch potful of bone-meal to every bushel of soil. The pots should be plunged in a bed of fibre, with bottom heat; at this stage careful watering is necessary, and little or no moisture should be given the roots until a quantity of new roots have developed and top growth commenced. This applies to all newly-potted bulbs, many of which are ruined at an early stage through the soil getting wet and stagnant before new roots are formed.

Ardisia crenata.—This plant produces its bright red fruits freely, and is very valuable for greenhouse or indoor decoration, as specimens remain in good condition for many months. As it takes three years to produce a good fruiting plant from seed, a batch should be raised each year to maintain a succession. This Ardisia may also be propagated from cuttings made of the leading shoots, for although lateral shoots root readily, they never develop a leader. If there is a stock of old plants, the tops may be used as cuttings; pieces six to eight inches long will root readily in a propagating case furnished with plenty of bottom heat. By this means, at least one year is gained in the production of good plants. If it is desired to raise a stock from seeds, the latter should be sown now, as they are somewhat slow of germination, but their development may be hastened by soaking them for twelve hours in warm water, and plunging the seed pots in a warm propagating case. This plant succeeds readily in any good potting compost, and in its younger stages is best grown in a temperature of about 60°.

Tuberous-rooted Begonias.—Where it is desired to raise a stock of these plants from seeds, the latter should be sown sometime during this month. The seed-pans should be filled with a light, sandy compost, made moderately firm, and the soil should be watered with a fine-rose can a few hours before sowing the seeds. The dust-like seeds should be carefully distributed over the surface, and should not be covered with soil. Place a piece of glass over the seed-pan and give shade until germination takes place. When the seedlings are large enough to handle, they should be transferred, in tufts, to fresh soil in pans or shallow boxes. When next handled, it is easy to separate the young plants singly. Success depends largely in growing them on quickly without a check, and frequent shifts into fresh compost are essential. Grown on in a temperature of 60°, the plants should be large enough to plant out in frames during April, from whence a number may be lifted later and potted for furnishing a display in the conservatory towards the end of summer, when they make a good succession to the earlier plants grown from old tubers; if desired, the seedlings may be grown straight on in pots. Where an early batch is required, the desired number of dry tubers should now be started in a warm house.

HARDY FRUIT GARDEN.

By W. AUTON, Gardener to VISCOUNT ELVEDEN, Pyrford Court, Woking, Surrey.

Planting.—Where considerable planting schemes are contemplated, a good deal of the work has, perforce, been deferred, and every effort should be made to complete these arrears whenever weather conditions are favourable. Where preparation was made in the autumn the soil is now in good condition, enabling the work to be carried out expeditiously when the weather is a little drier. See that the roots are spread out in the holes so that they occupy as large a feeding area as possible, and if any roots have been bruised in lifting, cut them back with a sharp knife to sound tissue. Care should be taken that the tree is not planted too deeply; on very heavy soils it is a good plan to plant fruit trees on a slight mound. To facilitate planting on such soils, it is wise to have little dry loam available to enable the planter to plant firmly and make a good finish. So soon as the work is completed mulch all trees with decayed manure.

Pruning.—Where the pruning of Apples and Pears has not been completed, the work should be done whenever favourable conditions prevail. No hard and fast rule can be laid down as to the degree of pruning necessary, but, where summer pruning has been practised, little winter pruning will be necessary, beyond removing all dead, diseased or badly placed shoots, and in some cases thinning the spurs. A knowledge of varieties and their behaviour under various conditions is also necessary to enable the operator to accomplish the work successfully. Very hard winter pruning should not be done, as it results in gross growths which have no tendency to fruitfulness; the ideal to aim at is so to govern the growth of the tree that the need of winter pruning is reduced to a minimum. In the case of trees growing on walls and espaliers all ties should be examined, and it is a good plan to renew them all entirely, as old ties frequently harbour insects and make it difficult for birds or sprays to reach them. When overhead work is completed, the borders should be cleaned and lightly pricked over, when a mulch of rotten manure may be applied. When pruning, save all scions which may be required for grafting in the spring, and lay them in by the heels in a sheltered and shady position. Success in future operations with the scions largely consists in keeping them dormant, as if they can be kept in a state of quiescence until wanted for use their chances of growth are good.

FRUITS UNDER GLASS.

By T. PATEMAN, Gardener to SIR CHARLES NALL-CAIN, Brocket Hall, Hertfordshire.

Cleansing of Fruit Houses.—With the advent of the New Year, every effort should be made to thoroughly cleanse all fruit houses which have not already received this attention. This is a most important cultural detail, especially where vines or fruit trees have been attacked by red spider or mealy bug. The latter pest may be eradicated, now that the trees or vines are in a dormant condition, by cyaniding the house; this operation is best carried out before untying the trees or vines, and again after all loose bark has been removed from the latter. Cyaniding is, of course, only necessary when the occupants of the house have been badly infested with this pest. The wood-work of the house should be painted, if necessary, and the wall coated with hot lime-wash mixed with paraffin. The mixture should be worked well into the crevices of the wall with a stiff brush. When this work has been completed, remove the surface soil of the border to the depth of two inches and add new material.

Temperatures.—Fruit houses that have been closed, and the trees started into growth, should not be kept too warm. In the case of Peaches, high temperature promoted by fire-heat may lead to the dropping of the buds, and with vines it may tend to cause weak growth. On bright days the temperature raised by solar heat will prove beneficial to the trees. This need cause no alarm whatever, provided the trees have received no check through lack of moisture at the roots, or any other cause. Although the trees should never be allowed to become excessively dry at the roots, they will require very little water at this stage. On bright days they may be sprayed overhead, and this should be done about noon. When the temperature of the house rises to 55° with solar heat, a little air may be admitted for a short time, but the house should be closed early in the afternoon to conserve the sun's warmth as much as possible. On mild nights the temperature may be 50°, but in frosty weather it may be allowed to drop to 45°, rather than overheat the hot-water pipes.

THE KITCHEN GARDEN.

By F. STREETER, Gardener to MAJOR ALBERT PAM, Wormley Bury, Broxbourne.

Exhibition Onions.—To produce large, well-ripened Onions for early shows, the seeds should now be sown in boxes. The latter should be well-drained and filled to within half-an-inch of the top with the following compost:—two parts rich fibrous loam, one part leaf-mould, and one part coarse silver sand. Make the compost firm, and select the finest seeds, placing them half to three-quarters-of-an-inch apart. Just cover the seeds with very fine soil, and place the boxes in a fruit house that has just been started, having a temperature of 45° at night and 50° by day. Cover the boxes with sheets of glass and shade with paper until the seedlings appear, when they should be exposed fully to the light. Provided the soil is in proper condition for sowing, water will not be required for the first forty-eight hours. Wipe the moisture from the glass covering the boxes the first thing every morning. Attention to minute details should be given at all times. Undoubtedly, the finest varieties for this purpose are a fine form of selected Ailsa Craig and Premier. With this sowing sow also some seeds, broadcast, in boxes, to obtain young plants for use as salad.

Cauliflower.—Give the autumn-sown Cauliflower plants growing in frames plenty of air at all times when weather conditions permit. Slightly prick over the surface and dust it with soot once weekly. Remove damp and decaying foliage, taking care not to injure or loosen the stems. Make a further sowing of two early maturing varieties in well-drained boxes, to form a succession to the above. Sow thinly, and cover the seeds with finely-sifted burned earth. This will be found an excellent preventive of the dreaded blackleg disease. Place the seed-boxes in a newly started fruit house until the seeds have germinated, then remove them to cool quarters.

Lettuce.—Sow sufficient Lettuce seeds for the requirements of the establishment. The young plants will mature quickly if placed between the rows of Potatos, etc., over the newly-made hot-beds (in heated pits). Sow sufficient Mustard and Cress for fresh supplies of these salads weekly.

FOR NORTHERN GARDENERS.

By A. T. HARRISON, Gardener to the MARQUIS OF AILSA, Culzean Castle, Maybole, Ayrshire.

Pleasure Grounds.—All fallen leaves not previously removed should be raked in heaps and either carted to the frame ground for use in the making of hot-beds, or deposited in some well-screened depôt for the formation of leaf-mould for future use. Where the grounds to be cleared of fallen leaves are planted with Snowdrops, Narcissi, etc., it is important that this work should be done early, as these plants are now well through the soil, and much damage may be done to the tender growth if the removal of the leaves is longer delayed.

Seed Potatos.—The earliest varieties of Potatos are sprouting rapidly, therefore the tubers should be arranged in single layers, and exposed to plenty of light and air, as otherwise the growths become attenuated and weak. Care and attention are necessary, however, to see that they are kept free from frost, as one night's neglect may spell disaster: the earliest and best sets will be the ones to suffer most, and thus defer the early Potato crop for a month or more. Potato planting begins early in this district, the middle of February being the usual time for commencing the work in fields.

Early Peas.—The first dish of green Peas is always appreciated, and the middle of January is a good time to make the first sowing, but as outside conditions do not permit of this being done in the open the seeds should be sown in long, narrow boxes with detachable bottoms under glass. The seedlings may be transferred readily from the boxes to their permanent quarters later. If the boxes are made about six feet long, and slightly wider at the bottom than at the top, it will facilitate the process of transferring the plants to the shallow trenches prepared for them without much disturbance. Cover the seeds with fully an inch of soil and place the boxes in a cool structure until germination takes place, when they may be placed outside in a sheltered corner. Suitable varieties for this sowing are Pioneer and Hundredfold.

ROSE GARDEN.

ROSA CORYMBULOSA.

THIS pretty Rose species was named by the late Mr. R. A. Rolfe, who described it from plants raised at Kew form seeds collected by Mr. E. H. Wilson in Western China, in the autumn of 1907. The description accompanies a fine illustration in *Bot. Mag.*, t. 8566, reproduced from a drawing by Miss Smith. Judged only from this picture Rosa corymbulosa promises to be not only a good garden plant on its own account, but also the progenitor of a useful race of Roses. The flowers are described as "numerous, in small corymbs towards the ends of the branches." In the *Bot. Mag.* figure there are three corymbs, with four, eight and nine flowers respectively, all on a six-inch length of branch. The flowers are pink, from three-quarters of an inch to one inch wide; each petal is obcordate, the "notch" being a prominent feature, and making each petal bi-lobed at the broad, outer end. The leaves are rather closely set, with serrated margins and a glaucous undersurface.

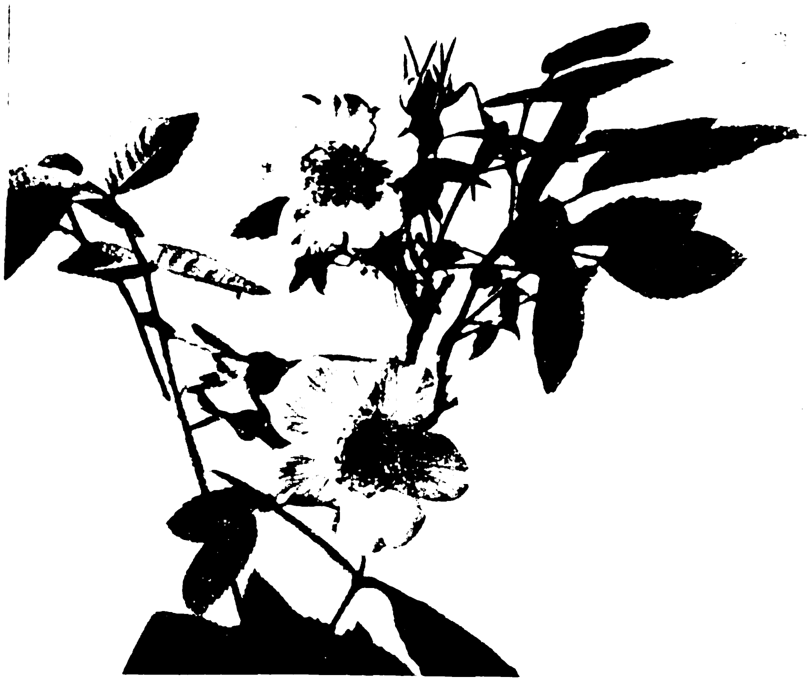

FIG. 11.—ROSA CORYMBULOSA.

Possibly some forms of R. corymbulosa are better than others, and, if so, selected seedlings might add to the beauty of our gardens. Unfortunately, there is a statement in *Plantae Wilsonianae* to the effect that the wild plants of R. corymbulosa "have much smaller corymbs than that figured by Rolfe, indeed, the flowers are often solitary." There seems to be no doubt as to the hardiness of this Rose, therefore those who interest themselves in hybridisation might well consider its possibilities, notwithstanding the wide differences suggested by Fig. 11 and the *Bot. Mag.* illustration.

TREES AND SHRUBS.

HYDRANGEA PANICULATA GRANDIFLORA.

This is a very desirable hardy shrub, and most decorative when planted as single specimens or in groups of three in the herbaceous border. It bears very large panicles of white flowers, the inflorescences often being a foot in length. The flowering season is late summer, and the plants will furnish a display extending over six to eight weeks.

In order to obtain the best results this Hydrangea should be planted in rich, fairly moist soil, and should be cut hard back in spring. *W. Logan.*

ERICA VAGANS ALBA.

The appearance of the new white variety of Erica vagans, named Lyonesse, mentioned by your contributor, *A. T. J.*, on p. 468, vol. LXXVIII, will be hailed with pleasure by many admirers of the Cornish Heath, which deserves all the praise bestowed upon it by your able correspondent.

One great defect in the older white varieties is the presence of the protruding, coloured anthers which detract from the purity of the flower. I should like to know if Lyonesse is free from this defect, or in what other respects it shows an improvement on other white forms. The varieties St. Keverne and Mrs. Maxwell are indeed acquisitions. *S. Arnott.*

RUBUS IRENAEUS.

This evergreen, trailing shrub is one not often seen in gardens, yet, having grown it in the woodland for a few years, it promises to be a valuable and ornamental subject for covering the ground in shaded or open situations.

R. irenaeus is quite prostrate, having trailing, slender, pale green, downy stems furnished with large, heart-shaped leaves suggestive of those of the Coltsfoot. But, unlike those of the latter, the leaves are a rich green and very glossy, whilst the underparts are covered by a greyish felt which tends to a browner hue with age. The foliage is distinct and handsome, especially in winter, and it appears to be absolutely frost-proof. So far, my plants of R. irenaeus have not flowered, and it would be interesting to know under what conditions the plant does so and bears fruit in this country. It was introduced from Central China in 1900 by Mr. E. H. Wilson. *J.*

MUEHLENBECKIAS.

Eminent authorities declare that there are only two species of Muehlenbeckia in general cultivation in this country, and the humbler amateur has to abide by that decision. Even so, there is such a distinct difference between M. complexa and M. varians (said to be a form of the latter) of the lists that for all practical purposes these two may be considered apart. Doubtless there are other, and intermediate, forms, but with me I have always found M. complexa a much inferior shrub to M. varians, in that it is stiffer in growth and lacks the elegance of its rival. While the former generally has a tendency to grow downwards, or remain more or less prostrate, and while it often makes a dense, unwieldy and not particularly attractive mass of its wiry branches, M. varians is a most willing climber; its more slender branches have a decidedly twining inclination, they will scale a wall with the most meagre of assistance in the way of support, and often make six feet of growth in a season. Moreover, M varians, as usually sent out by nurserymen, has fiddle-shaped leaves which never fail to arrest attention.

Though the above have not flowered in this garden, the very dwarf M. axillaris never fails to yield an abundance of its tiny yellow-green tufts, and these always produce the little translucent fruits which look like beads of dew. This species is, indeed, a very delightful rock garden shrub. It is deciduous, like the foregoing, quite hardy in most places, and by no means difficult to establish. In height it does not exceed about two inches, but it will spread in any light, stony soil, and cover in the course of many years a space of perhaps a square foot. This and other kinds are easily propagated by cuttings or layers. *J., N. Wales.*

FLORISTS' FLOWERS.

MR. POCKETT'S CHRYSANTHEMUMS.

From Mr. Thomas W. Pockett, the famous raiser of Chrysanthemums, we have received a cheery letter and a photograph of his Chrysanthemums, reproduced in Fig. 10.

He writes: "This is the way I grow my Chrysanthemums at Healesville, Victoria, Australia. The row of plants on the left centre of the picture is a fair sample of what the others were before they were cut. As you will observe, provision is made for covering the plants when there is too much rain, very heavy dews, or bright sunshine. The plants in the distance, without protection of any kind, are of the variety Thomas W. Pockett. The indigenous trees are mostly Eucalyptus and Acacia, but the somewhat conically shaped tree in the centre is what we call the Native Cherry, which bears small fruits with the stones formed on the outsides of the fruits. My place is situated in the mountains, about thirty-five miles from Melbourne, consequently we are comparatively free from frosts and fogs. Most of the seed plants are placed on the balcony so that they are handy for the work of hand pollenisation, and for this purpose the position is ideal. All good wishes for 1926 to my many friends in the home-country."

RUST ON CHRYSANTHEMUMS.

This troublesome disease is not easily cured, and where plants are badly infested, probably the best and only method to adopt is to burn the whole collection so soon as the plants have flowered. Fresh stocks should then be obtained from a reliable source. The growing quarters may also be changed with advantage. This applies to all stages of growth, from the date of inserting the cuttings to the time when the plants are ready for housing. The propagating frame should be cool and airy, and from the time the plants are in the frames to the final housing of them they should never be grown under stuffy or crowded conditions.

I struggled along for several years with a rust-infested stock, and incidentally tried numerous fungicides, which the manufacturers claimed would cure the disease, without any beneficial result.

A few years ago a neighbouring gardener begged cuttings, as he was anxious to get a stock of plants. Rust never put in an appearance, possibly because no attempt was made at high cultivation, but more probably because the plants were growing on new ground. When the benefits obtained by the change were noted, I decided to renew the whole of my collection from reliable sources. The result was satisfactory, no trace of disease being found the next season. This immunity may be attributed in part to the fact that new quarters, more elevated and open, were secured on which to grow the plants when in their flowering pots.

In private establishments, Chrysanthemums are often grouped in corridors and living rooms, with the result that cuttings from them are weak. Such plants do not produce the most satisfactory cuttings for maintaining a healthy and vigorous stock. It is desirable, where time can be spared for the purpose, to put a number of plants in the open ground. These special stools should be lifted in the autumn, placed in a cool house or pit and used for purposes of propagation. *Charles Hodgson.*

ALPINE GARDEN.

POLYGALA VULGARIS.

It is rather surprising that the charming little Milkwort of our native heathlands, Polygala vulgaris, has never found its way into British rock gardens, or into the catalogues of nurserymen who specialise in alpine and rock plants. It is even a matter for surprise to me that I have myself, up to now, overlooked the merits of this beautiful little plant. I think perhaps I half imagined that it was an annual or a parasite, or had some tiresome kink of that sort. When dug up it displays a rather wiry, tap-like root system, not unlike that of some of the annual or biennial Gentians and Centaureas. But I have tried a few collected plants in my rock garden, and although I planted them with little faith, they have proved quite easy to establish, and as perennial as the botany books state they are. It is a neat little plant, making a close evergreen mat of dark green foliage, and producing in July and August little two-inch to three-inch flower spikes. The flowers are difficult to describe in clear unbotanical language, but perhaps it will convey some idea of what they are like if I state that they are like tiny Gorse blossoms, with a fringe or beard where the keel of the Gorse flowers would be. The colour of the flower varies greatly. The normal or commonest colour is blue, and a pure bright blue at that, whilst pink varieties are commonly found, as well as pinkish lilac and pure white.

The only approach to finding this excellent plant in cultivation, apart from my few collected specimens, is that one or two alpine specialists list a rather rare, local, chalk-down variety of Polygala vulgaris called calcarea. This is, if anything, a better plant than the common type, forming a more definite mat of foliage, flowering very freely, and giving flowers of a bright, pure, clear, sapphire blue. Its time of flowering is May and June. The variety calcarea is recognised by botanists, and is described in Bentham and Hooker's *British Flora.*

There are some splendid species of Polygala which grow in the Alps, like magnified forms of P. vulgaris, six to nine inches high, with pink, blue, and bright magenta flowers, and they would make glorious plants for the rock garden. I have tried to bring them home several times, but have never succeeded in establishing them. Farrer speaks highly of these plants—of their brilliance and beauty—but guardedly as to their culture and nomenclature. He makes but passing mention of P. vulgaris, and does not mention P. v. calcarea at all. I think a determined effort should be made to introduce these splendid alpine Milkworts; but in the meantime let me strongly recommend rock gardeners to collect and try the dainty British species, and especially the hearty, tufted calcarea variety of it. *Clarence Elliott, Stevenage.*

ROCKERY SHRUBS.

A judicious selection of dwarf-growing shrubs adds materially to the general appearance and effectiveness of the rock garden.

The following are a few of the hardiest and most desirable subjects that may be utilised for the purpose:—Abies balsamea hudsonia, a neat, congested bush; Cupressus Lawsoniana Forstschiana and C. L. nana, both miniature bushes; Juniperus communis alpina (nana), J. Sabina, Picea excelsa var. Gregoryana, an attractive and miniature Spruce Fir; P. e. pygmaea, P. e. Maxwellii, P. e. pumila glauca, a dense-growing dwarf plant, with blue-green foliage; Retinospora filifera nana; R. filifera aurea, with light yellow foliage; R. obtusa nana aurea, with golden foliage Taxus repandens, an effective, prostrate-growing Yew; and Thuja occidentalis Rheingold, a variety with golden foliage.

A few effective, flowering shrubs include Azalea amoena, A. rosaeflora, Berberis Darwinii, B. Wilsonae, Cistus crispus, C. florentinus, Cotoneaster microphylla, C. humifusa, Hypericum Moserianum, and the variegated form, tricolor; Margyricarpus setosus, Perowskia atriplicifolia, Veronica cupressoides, V. loganioides, and V. Hectori. *W. Logan.*

ORCHID NOTES AND GLEANINGS.

CALANTHE HEXHAM LAD.

Clive Cookson, Esq., Nether Warden, Hexham (gr. Mr. W. J. Stables), sends a flower of the third of his beautiful C. Angela crosses named C. Hexham Lad, which is one of the largest and most richly-coloured of winter-flowering Calanthes.

The whole flower is deep ruby-crimson, the broadly-developed lip being slightly the darker and having a lighter shade on each side of the crest. The apex of the column is white, making an attractive centre.

The new hybrid is the result of crossing C. Angela and C. Sedenii burfordiense, following the lines of the C. Ruby section, so admirably worked by Mr. Cookson's father, the late N. C. Cookson, Esq.

CYPRIPEDIUM SPECIOSUM.

Formerly often confused with Cypripedium macranthum, C. speciosum was cultivated in British gardens for many years before Mr. R. A. Rolfe described it in the *Kew Bulletin*, and it was figured in the *Bot. Mag.* (t. 8386), during 1911. It is a Japanese species and undoubtedly allied to C. macranthum, which, however, is not found in Japan. Those who can cultivate C. macranthum successfully should find no difficulty in growing C. speciosum (Fig. 12). The latter has stems from eight inches to sixteen inches tall, with sessile, more or less ovate, ciliolate, pubescent and plicate leaves. The large flowers, borne singly at the apex of growth, are handsome, usually flesh pink, or even deeper, though sometimes paler, and with rose veinings. The dorsal sepal is about one-and-a-half inch long and the ventral sepal only a trifle shorter, with a bifid tip. The petals are also about one-and-a-half inch long and nearly three-quarters-of-an-inch broad, while the big globose or inflated lip is a very showy feature of the flower, its rosy pink colouring being set off by the white staminode. At the base of the dorsal sepal and of the petals there are numerous dots of a deeper shade than the ground colour.

The late Mr. Reginald Farrar wrote enthusiastically of C. speciosum:—"The sight of this, glowing with its noble baggy blossoms of pink and white among the rough grasses on the open downs above Ikao, or round the feet of Fuji-san, or peering here and there among the light bushes that they share at Shoji, with Paeonia japonica waving its pearly cups above the Slippers, is enough to make any gardener resolve that no cost shall be too great for the procuring and success of C. speciosum." June is the flowering period of this fine species.

IRIS GARDEN.

IRIS DELAVAYI.

It is many years since I first acquired Iris Delavayi, then a new plant on the market, and grew it in an ordinary border in the garden—rather a dry one. The result was not pleasing, as the plant flowered sparsely and the blooms proved disappointing. Had I known then what I know now, that the hollow-stemmed Irises generally love moisture, I would have planted I. Delavayi by the side of a small pond, where it would have had the abundant supply of moisture which it requires to do it justice.

Some time afterwards I saw it in a place where it was more at home, and then, with a plentiful supply of water, it grew to the height of four feet and produced plenty of its deep purple flowers, marked with white blotches. It is true, as has been remarked by an eminent writer on these grand flowers, that the blooms of the wild plants are comparatively small, but more satisfactory hybrids have been raised which give not only finer flowers, but bloom with greater freedom. Given the plentiful supply of moisture suggested above and a soil of moderate fertility, I. Delavayi will yield satisfaction to the lover of those forms of Iris which are not to be found in every garden, but which are not expensive to purchase, and which grow well under favourable conditions.

I. Delavayi may be planted in the spring; a sunny place should be selected if plenty of water is available, but one with a little shade if this is not to be had. *S. Arnott.*

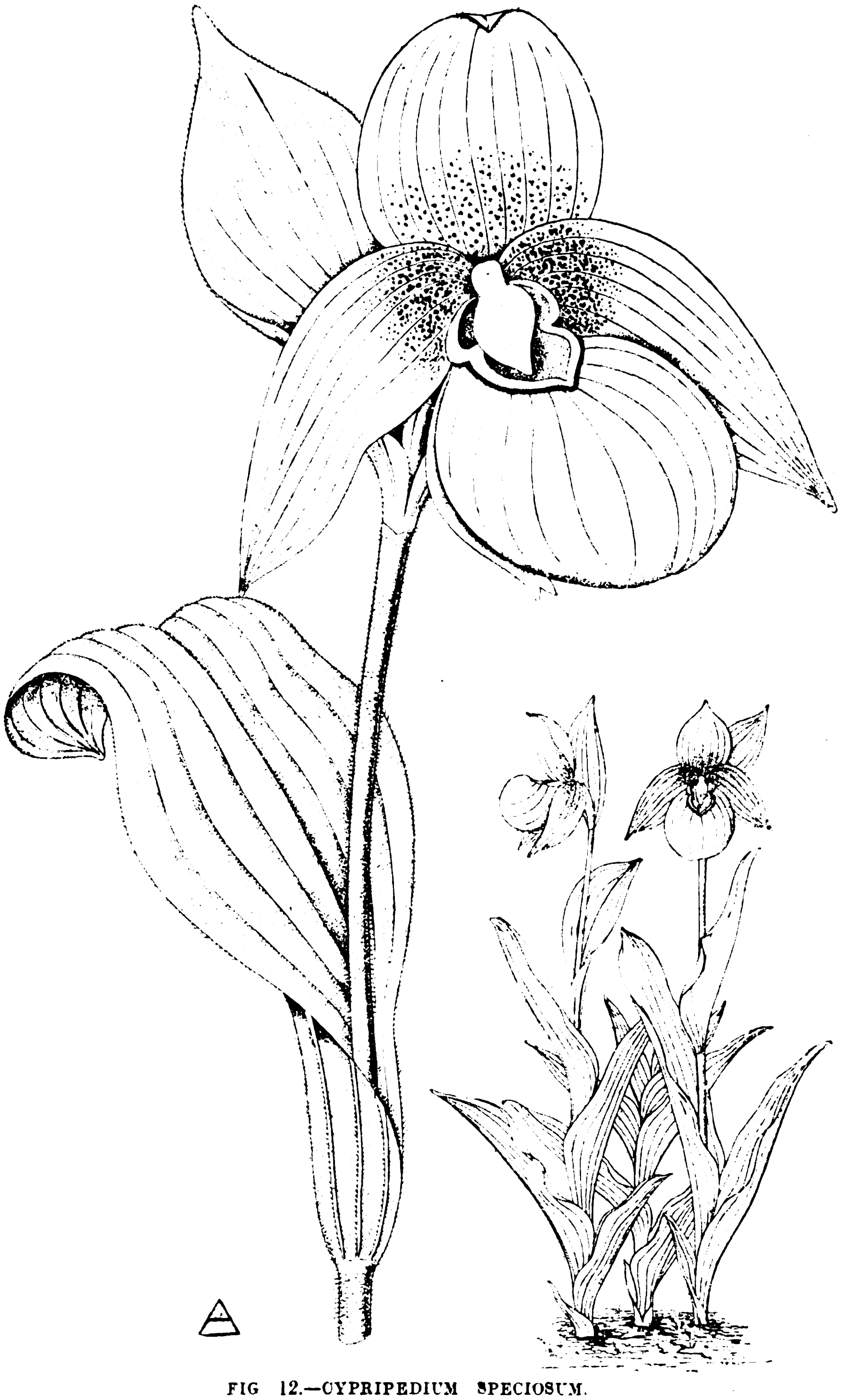

FIG 12.—CYPRIPEDIUM SPECIOSUM.

IRIS GRACILIPES.

This little Japanese Iris is one of the daintiest and most beautiful of its distinguished race, and, unlike many of the dwarf species, it gives a profuse display of blossom, and will remain in bloom for a longer period than any other rock-garden, rhizomatous Iris that I have grown. Even its leafage is exceedingly graceful. The grassy, yellow-green leaves of three to four inches, waving this way and that with the utmost elegance, will in a few years cover a wide pocket with their tender verdure.

The flowering season of this Iris is late spring and early summer, and there is nothing prettier in the rock garden than quantities of these slender-stemmed blossoms of delicate lilac-blue, finely veined and adorned with a yellow beard, hovering with their own inimitable grace just above the foliage.

I have found I. gracilipes to be of the easiest possible culture in any well-drained, gritty soil with full exposure. It will even thrive wedged in between rocks, for it is as indifferent to drought as it is to wet or frost.

This exquisite gem has been likened to I. tectorum in miniature. But, while it may be said to "feature" the Roof-Iris in its leafage, allowance being made for the vast difference in size, it is much more elegant in flower and certainly a more reliable bloomer. To my eye, the blossoms of I. gracilipes in their general appearance much more nearly resemble those of the great Flag Iris of Japan, if one can imagine the latter reduced to a diameter of about one-and-a-half inch. *J.*

HARDY FLOWERS FOR EXHIBITION.

The plants dealt with in my article which appeared in *The Gardeners' Chronicle* on December 5 last, belong chiefly to what may conveniently be termed miscellaneous subjects, and not to the big and popular families. It is wise policy to make good use of uncommon subjects, but nevertheless, prudence bids one have due regard for Pyrethrums, Phloxes, Delphiniums and other effective flowers. It is imperative, however, that these should be thoroughly up-to-date, or, at least, really good varieties should be staged, and in view of the fact that every competitor may be expected to make a strong feature of each popular family, according to season, effort must be made to produce the very best flowers by good culture.

For June shows, of which York Gala is the chief, good use may be made of Irises, but this does not mean that a third of the stand may be occupied by these flowers. I do not urge that in order to score full points for Irises in an exhibit of two dozen vases of hardy flowers it will be necessary to purchase the latest and most expensive novelties. One variety that is very hard to beat is Lord of June, and it cannot be far short of twenty years since Mr. Yeld took me down a tent at York to ask my opinion of this most appropriately named flower. To-day, as then, it is, in my opinion, good enough for the finest exhibit one may wish to stage.

Paeonies provide serviceable flowers for those who have well-established plants, but one point about them is, if they are really well-cultivated, and the doubles are brought to fine size, they require something more than an ordinary flower vase in which to arrange them to good effect. When faced with two sets of Paeonies, one flopping over the surrounding flowers, and the other with stems cut short and rammed deeply into the vase, it is difficult to determine which should be most penalised. When well-staged, few flowers can surpass Paeonies. The lobster-red, single-flowered Paeony lobata will make a magnificent vase, but some care must be exercised in choosing its immediate neighbours, for it is easily possible to counteract the advantage of its special attraction by destroying the finest effect of some other subject. I am aware that lobster-red is not a good description, for the colour is more dazzling and brilliant than any lobster ever was, and I doubt if words have ever conveyed a correct idea of its richness and splendour.

In Pyrethrums, whatever else may be omitted, Eileen May Robinson will make its mark, and if another single is required, Harold will serve the purpose thoroughly well. The white sport of Queen Mary is a double variety that anyone might be proud to stage, and the pale yellow Yvonne Cayeaux is very distinctive and choice.

Lupins may be used to good purpose, but there is the one tantalising trick they have of curling or twisting their spikes until they appear to have been tortured. I have experimented with the flowers to discover means of preventing this failing, and the best success has followed cutting in the very early morning, the day before the show, rolling each spike in a sheet of paper, left open at the top, and standing them, erect, in vessels of water in a shed, directly under a glass skylight. In this position the spikes remained erect while they filled their stems with water, and thus they remained stiff so long as required. Spikes cut in the evening and laid dry, in boxes, invariably twist, and refuse to straighten out. There are dozens of Lupins, all good enough for keen competition, but half-a-dozen must suffice and one of these should be either Delight, or Firefly, the two richest reds in the family. Gold Crest, Dresden China, C. M. Prichard, Joy, and Pink Pearls complete the half-dozen. I do not assert that these are the best six Lupins; indeed, it would not be difficult to select six half-dozens, but even then I believe one or two of those named would appear in almost every set.

Trollius play a useful part in June exhibits, and T. Ledebouri var. Golden Queen is particularly desirable; other good sorts being Triumph, Mrs. Harkness, and both Golden Globe and Orange Globe.

Delphiniums would present a baffling problem in regard to a selection of half-a-dozen varieties were it not for the fact that price will considerably simplify the task. It is only necessary to decide that half-a-guinea each shall be the minimum price with no limit to the maximum, and immediately Mrs. A. C. Kenrick, Mrs. Thos. Carlisle, Queen Mauve, etc., are written down; if on the contrary the limits are to be within half-a-crown and five shillings each, Nora Ferguson will doubtless be one, Mrs. A. J. Watson, Gen. Sir Douglas Haig, Lord Derby, an unhesitating choice for others, but no real enthusiast for Delphiniums will feel content without Millicent Blackmore and Rev. E. Lascelles, which latter is still one of the most distinct of Delphiniums.

July and August shows, and in the north, September as well, find Phloxes at their best, but he is a bold man who will cite a dozen varieties and say, "These are the best dozen Phloxes." It depends somewhat upon whether one is located in Scotland or somewhere round about London, for the ideal of the south is not the ideal of the north. At the London shows, and indeed throughout the South of England, the highly esteemed Phlox is one that produces a big, spreading truss, with very large pips of some striking colour, and such are largely found among varieties of Continental origin. The Scot, however, is keen on pyramidal spikes, built up as high as possible, with pips regularly placed, neither crowded nor gappy. The pip itself must be perfectly circular, flat, without a fold or kink in the petal to distort the perfect symmetry of the eye. A flower, no matter what its colour, which has a scalloped or uneven edge will not be tolerated, and that perfect regularity both in truss and pip is not always combined with great size. When it is, of course, the variety is the more highly prized, but form must stand first, even if a trifle of size is sacrificed as a consequence. I have no intention here, of discussing the question of which is the better ideal, but simply suggest that the English exhibitor will be well advised to make his selection from the biggest Phloxes he can get, but if he essays to take an exhibit to Scotland, then he must consider form first of all. Likewise the Scottish exhibitor who comes south will probably do better to consider size, even if he is inclined to shake his head and say "a wee bit coarse."

For the later summer and autumn shows, Kniphofias are a tower of strength. Mount Etna, Royal Standard, Torchlight Improved and K. aloides, Beecroft var. are extremely good among the giants, and of the lesser lights in point of size, Erecta, Coralina, Buttercup and Russell's Gold will serve one royally. The new hybrids of Lobelia syphilitica are great exhibition flowers, and the Sidalceas, of which there are now many beautiful varieties and hybrids, will be useful both in summer an autumn.

Another flower that will prove equal to filling a vase all through the show season is Salvia virgata var. nemorosa. It should, if possible, be staged in front of a sulphur or lemon-yellow colour, it being of very dark shades.

Scabiosa caucasica is invaluable, but it is useless nowadays to show flowers of a mediocre stock; it must be either an Isaac House variety or a specially good selection of the "perfecta" type. Nobody thinks of showing the old form of Erigeron speciosus now; Quakeress, Merstham Glory, or Asa Gray are chosen, while the Erigeron × Aster, Mesa Grande, is a capital vase flower.

It is undesirable, and quite unnecessary, to run near the border line of disqualification by showing subjects which open up dispute as to their eligibility in classes for hardy herbaceous flowers. Florists' Pentstemons, hardy Fuchsias, Spiraeas (not confusing these with Astilbes), and even Antirrhinums and Sweet Williams are best left out when there is the slightest fear that the wording of the schedule may be taken to exclude them.

In a final word, let me strongly urge that the aim of schedule compilers should be to make their meaning perfectly clear, and the aim of the exhibitor to put up a really good exhibit, to win or lose on its merits; not to creep in by straining after a disqualification of an opponent's exhibit, even though there may be a little evidence of licence in his interpretation of the wording in the schedule. Exhibiting should be a pleasurable, friendly warfare, free from cavil and bitterness. *A. J. Macself.*

NOTES FROM A WELSH GARDEN.

If it is still too early to realise the full extent of the injury done to tender and half-hardy plants during the November-December frosts, it is quite manifest that the casuality list would not have been nearly so serious has we experienced more normal weather during the preceding six months. When the frost came it found very many things with growths soft and sappy, perhaps still growing. But this was not so much the direct outcome of a warm, wet autumn as the effect of the latter following a long period of drought. During that rainless period, extending into the later summer, many subjects received such a check that one felt that an unusually vigorous and prolonged autumn growth was inevitable, and that is precisely what occurred.

In illustration of this it is interesting to note the following: Among a group of Leptospermums are several bushes of that fine variety, L. scoparium Chapmanii. One of these, probably because it did not flower so freely as the others, made a lot of new growth from August onwards, and it was still soft when frosty weather intervened. The result was that whilst its companions which had ripened their wood escaped without any injury, this particular individual had every shoot cut half-way back. The bark of these upper parts is now split and gaping, and every leaf is withered and brown.

More serious damage was inflicted upon small plants about the margin of the bog and in damp borders. In many instances these had their roots torn off by upheaval, and it was a curious, if vexing, sight to see precious Primulas and other plants raised on pillars of ice to as much as six inches above the surface. When thaw came and the soil resumed its old level most of the Butterworts (Pinguicula) were lying about the surface looking more like tiny Lily bulbs than anything else. Many of these had not a scrap of root left, and one wonders how they fare on the moors where frost is even keener, and where they often grow alone on bare soil. Doubtless many of the yellowy-green, scaly nodules would ultimately re-fix themselves in a congenial location and the question might be asked whether this disruption by nature has been adopted by the plant as a means towards dispersal? Stranger things have happened.

The winter-flowering Periwinkle (Vinca difformis) has been bright and cheerful since November in a sheltered nook in the woodland, a pure white form being especially striking. Though perhaps rather less hardy than V. major, the slight injury this plant suffers from frost is very soon overcome in our climate, for it is a vigorous grower and bloomer.

The most beautiful berry-bearing shrub throughout December has been Cotoneaster pannosa, and we can generally count upon this fine species retaining its fruit crop until well into February. But, quite apart from the rich crimson of those abundant and prettily-disposed clusters, which, by the way, are rarely touched by birds here, C. pannosa is a singularly charming shrub. The evergreen leaves, slightly silvered by silky hairs, the elegant poise of the beautifully tapered branches and the red-brown bark, together have an extremely handsome effect, placing this Chinese species among the very best of its kind. Another member of this genus which is always very attractive at this season is C. Henryana. Though it does not fruit with the freedom of many others, the large leaves, now a rich bronzy green, and the drooping, spreading habit never fail to receive admiration.

In leaf-colour, however, during the earlier months of winter, one gets the brightest tints in those subjects with gold or silver foliage. Here many of the Coniferae excel, and one need hardly point out how the colours of Cedrus atlantica glauca, the blue Spruces and the blue and gold Cypresses stand out in their fullest brilliance these winter days. The very beautiful Cupressus macrocarpa aurea is worthy of special mention, but the colour of even this fine subject cannot exceed the gleaming gold of that excellent little Scots Pine (Pinus silvestris aurea), which here occupies a place among some lichened rocks on an elevated part of the rock garden. The Junipers are also at their best just now, especially those of a glaucous or golden hue.

In the same way many of the Oleasters (Eleagnus) are admirable winter subjects. E. macrophylla is particularly good, and this splendid shrub has carried its fragrant, Fuchsia-like, silvery blossoms throughout the hard weather. Arbutus Menziesii, a specimen about fifteen feet in height, has borne for the first time here some clusters of its orange-coloured fruits, but if this charming Californian species never gave us any more than its large, glossy, bright green leaves and its cinnamon-brown bark it would rank among the choicest of ornamental evergreens. Bret Harte was not drawing very heavily on his imagination when he described the Madrona, as this Arbutus is known in California, as a gay woodland masquerader in Lincoln-green and scarlet hose!

Although the dwarfer Ericas have ceased to flower by the time E. darleyensis shows its first pink blossoms, there remains a great charm about a garden of hardy Heaths in winter. The various shades of green displayed by different species and varieties are in themselves very delightful, but this foliage is even more effective as a setting to the ruddy-browns of the faded inflorescences. Some of these latter are, indeed, a feature of the season which few can overlook, especially in Erica vagans and E. stricta, whose fuzzy twigs of bright moss-green terminate in calyx clusters of a warm foxy-red. It is in appreciation of colour of this description that we always allow the dead stems and flower heads of herbaceous Spiraeas and Astilbes of the waterside to remain standing so long as possible. A good, broad belt of these, glowing with a rich rusty-brown was quite a cheerful feature during the frosty spell. In a neighbour's garden I lately saw such an array against the fresh, yellow-flecked green of Bamboos and the effect was most impressive. *A. T. Johnson, Ro Wen, Talycafn, N. Wales.*

PUBLIC PARKS AND GARDENS.

The Swansea Corporation has recently decided to acquire half-an-acre of land adjoining Cwmdonkin Park, at a cost of £900 in order to prevent building, and to preserve the charm of this park, which is considered the finest of all the many parks and open spaces in Swansea. The Council has further agreed to promote a Provisional Order for the purchase of twenty acres of the Ravenhill Estate for the purpose of an ornamental park. It has also been agreed to purchase the Hafod Fields, consisting of seven acres and an area of twelve acres at Llansamlet, both for developing into recreation grounds.

The City of Liverpool has received a generous and beautiful New Year's gift from the six sons of the late Mr. and Mrs. Thomas Clarke. This gift, consisting of Allerton Hall and the surrounding Allerton Park, about forty-three acres in extent, is presented by the sons in memory of their parents. The Clarke family has a long history and for many years has been associated with the tobacco-manufacturing industry in Liverpool. The Corporation proposes to use Allerton Hall as a branch library and art gallery, and the park for public pleasure grounds and sports. Liverpool has a number of large public parks and open spaces, the biggest of which is Sefton Park, with an area of 269 acres. Newsham Park, with 147 acres and Wavertree Park, with 108 acres are others of importance.

PLANTS NEW OR NOTEWORTHY.

PRUNUS SERRULATA VAR. FUDAN ZAKURA.

Perhaps one of the most interesting introductions is a Cherry called Fudan Zakura, belonging to the "serrulata" group of Japanese flowering Cherries. Its native name signifies "Continuous Cherry," and has apparently been given to it on account of the long period during which it remains in bloom. This plant blossomed with me for the first time in the spring of 1925, when it opened its first flowers early in March. Flowers were then produced uninterruptedly for six weeks, a curious feature being the gradual lengthening of the peduncle as the foliage appeared. Flower buds commenced to swell again in late autumn, and a few opened before the end of November, 1925. As with Prunus subhirtilla autumnalis, these were damaged, and further development retarded, by the severe weather; but a spray cut and put into a vase readily responded to the warmth of the house, and the blossoms opened fully (Fig 13). The flowers are pure white and measure about one inch to one-and-a-quarter inch in diameter. They are borne in close clusters against the naked wood, and are extremely decorative.

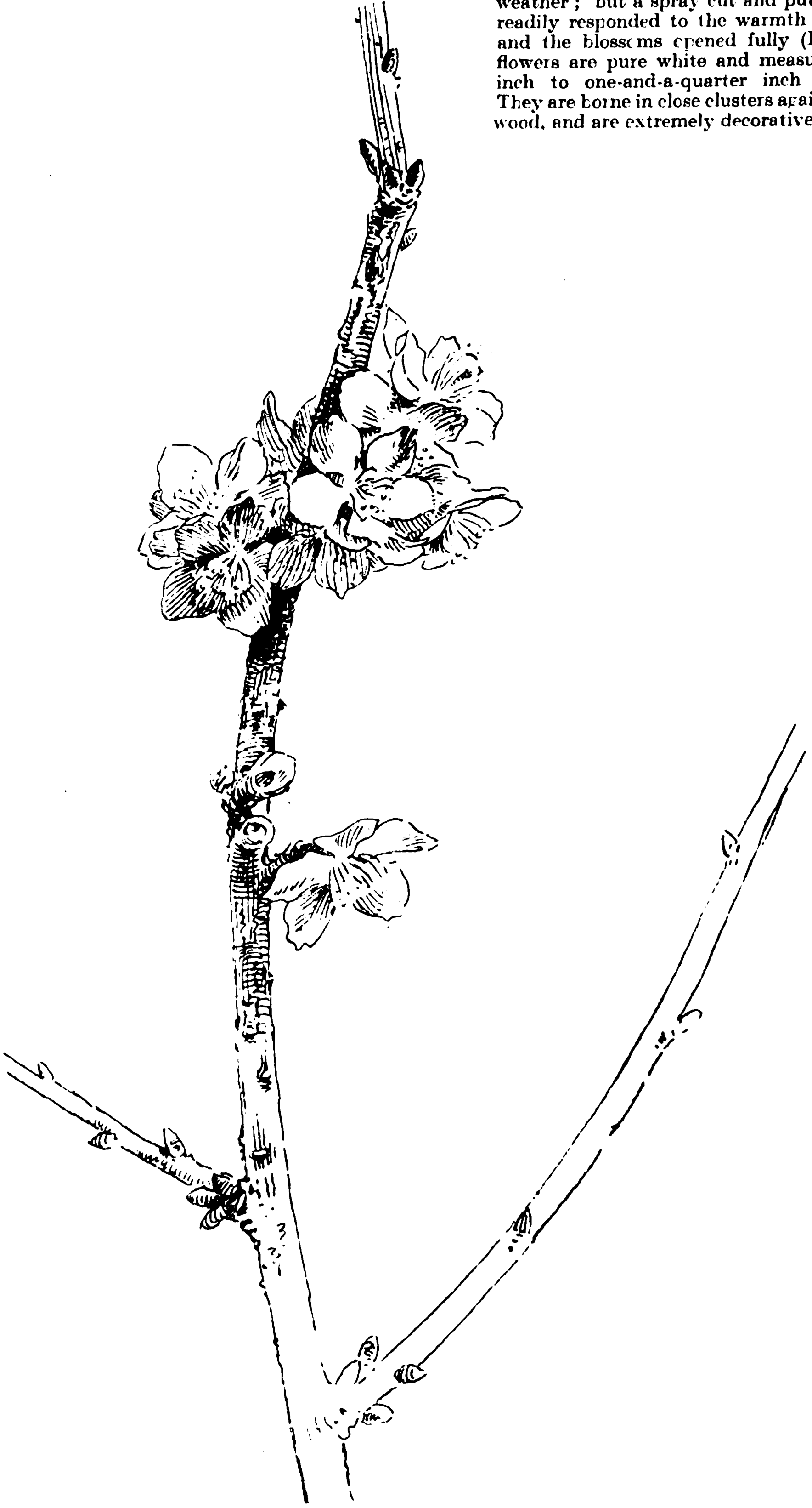

FIG. 13.—PRUNUS SERRULATA VAR. FUDAN ZAKURA.

This Cherry should prove a very valuable plant for forcing purposes. It is surprising that the variety has never been introduced before, for, so far as I am aware, my plants are the only ones existing in Europe. *Collingwood Ingram, The Grange, Benenden.*

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STERCULIACEOUS PLANTS IN SOUTHERN GARDENS.

THE family of the Sterculiaceae is not abundantly represented in gardens. Most of the members are not hardy enough to be grown out-of-doors. The only representatives frequently met with are Fremontia californica, a shrub or small tree with showy yellow flowers, from California, and a stately tree, Sterculia (or Firmiana) platanifolia, from China. Both are, however, rather tender, and only succeed in very sheltered positions. Whilst the Fremontia is not rare in English gardens, I have never met with it in Italian gardens, where, on the contrary, fine trees of the Sterculia are frequently seen, especially in northern Italy. Both are deciduous. The finest representatives of this interesting, chiefly tropical and sub-tropical family, are evergreen, and form a conspicuous feature in the gardens of the Mediterranean.

It is especially the genus Brachychiton that adorns the gardens and avenues of this region. This genus is composed of about eleven species and confined to Australia. Of these, only four species are found in cultivation, and only two of them again are planted to a great extent. The commonest of all is Brachychiton populneum, R. Br., which forms a tall tree forty feet to fifty feet high or more, with a straight trunk and smooth, greyish-green bark. The branches are directed upward, so that they form an erect, pyramidal crown. The leaves are variously shaped. On young plants they are deeply five-lobed, the two basal lobes small, the others linear and acute. On about three-year-old individuals, which may be four to five feet high, the leaves are broader, and these only have three broad lobes. On adult trees the leaves become ovate-lanceolate, pointed, almost resembling those of the Poplar. The foliage is always long-stalked, firm and glossy-green above, giving to the trees an attractive appearance all the year round. In early summer, —June and July, the trees flower abundantly. Every branch terminates in a panicle, carrying a fairly good number of graceful, bell-shaped, five-lobed flowers, each about half-an-inch long. Although they are not vividly coloured, being whitish, spotted with fine wine-red dots inside, they brighten up the trees considerably; the flowers are followed by a number of large, oblong, woody pods. These open on one side and expose a honeycomb structure containing a number of black seeds of the size of small Peas.

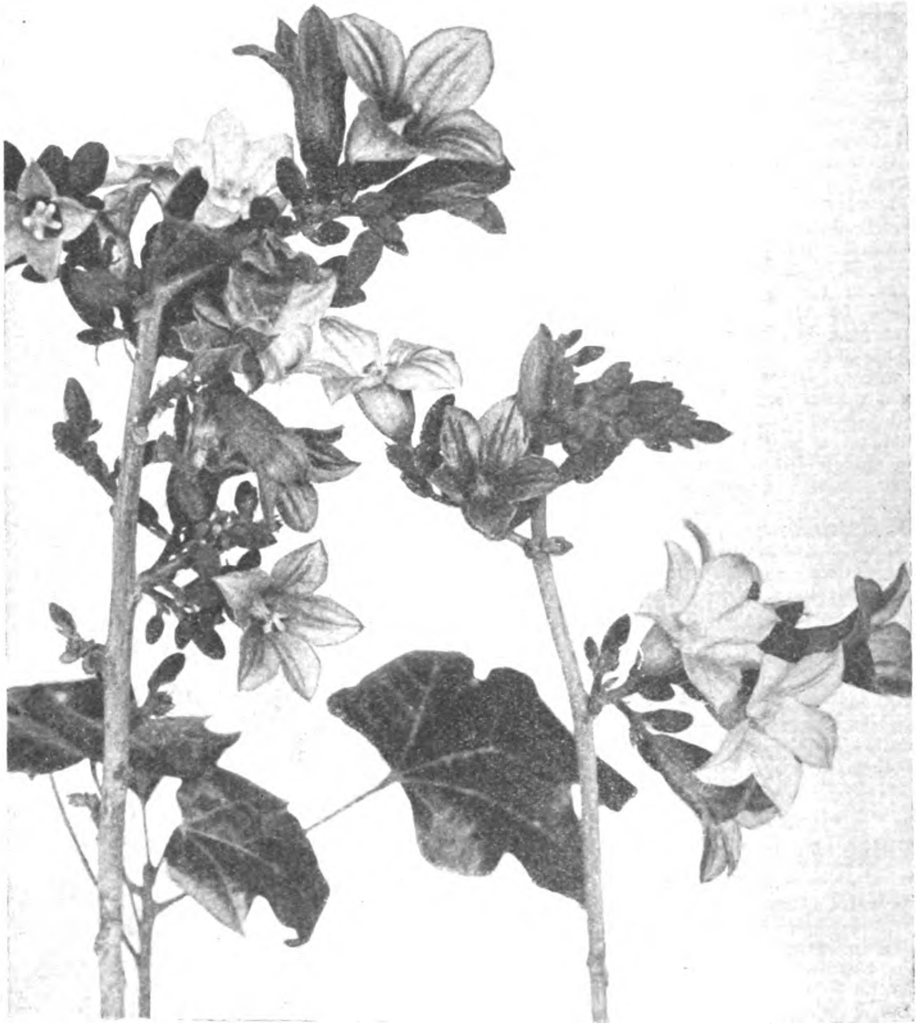
FIG. 14.—BRACHYCHITON BIDWILLII.

Brachychiton populneum occurs from Queensland to Victoria and is also found in Western Australia. It seems to have been introduced in 1824, according to a note in *Nicholson's Dictionary of Gardening*, under Brachychiton diversifolium, which is a synonym. [The *Index Kewensis* refers the Brachychitons to Sterculia. Eds.] I do not know when the tree first came to Italy. By now they are established all along the Mediterranean since at least forty to fifty years. As these trees grow very quickly and flower and fruit profusely, they evidently spread in a comparatively short time. They form excellent avenue trees with their pyramidal crowns, and succeed in every ordinary soil that is deep enough to provide the roots with sufficient moisture, especially during summer. Their wood, however, is soft and of little value.

Less frequently one sees Brachychiton acerifolium, F. Muell., from New South Wales. It is a much nobler tree than the former. Its comparative rarity may be due to the fact that it does not produce annually an equally large crop of seeds. Yet when seeds are produced, there is ample opportunity provided for its propagation. It is equally quick growing, but reaches a greater height, forms a tall, greenish stem and a broadly pyramidal crown. The leaf stalks are about five to eight inches long, the blades coriaceous and glossy green on both sides, about eight inches across, divided almost to the base into five to seven pointed lobes. In young individuals these divisions have again one or two acute lobes on each side. Whilst Brachychiton populneum starts flowering early in life and does so every year, Brachychiton acerifolium, on the contrary, only flowers when adult or when of a certain age, and then but rarely. Years and years may pass and the tree never shows a sign of a flower, but suddenly it seems to change its mind, and to gather all its energy to make up for the lost time, and the whole tree is then literally covered with flowers. At that time, many, if not most of the leaves, are shed. The tree then presents a marvellous aspect, and when seen unawares from some distance, one has the impression of a huge flame, and one finds the native name "Flame-tree" most appropriate. It flowers usually in midsummer—July and August. The Flame-tree is certainly one of the finest trees for the south. It should be planted far more frequently, but it demands a good soil and a little more sheltered position than the now almost ubiquitous Brachychiton populneum. *Nicholson's Dictionary* gives no data for the time of its introduction.

A much smaller tree, or rather only a large shrub with a short trunk and spreading branches, is the third species, Brachychiton Bidwillii, Hook (Fig. 14). It is a native of Queensland, where it was first discovered by Bidwill in the Wide-Bay district, who also sent seeds to Kew in 1851. It grows much less regularly than the two former species, which, besides, are entirely glabrous, whilst the young shoots and most parts of B. Bidwillii are densely hairy. The leaves are mostly three-lobed, but sometimes also five-lobed, rather thick, soft, dark and dull green above, and brownish, stellately tomentose underneath. It starts flowering as a rather young bush, and once started it continues flowering every summer. Indeed, it is one of the most showy summer-flowering trees of its region. The flowers are borne in short-stalked clusters from the axils of the upper leaves, often so many as twelve to fifteen together. They are bell-shaped, one-and-a-quarter inch long, with five spreading, deltoid lobes, of a fine crimson-red, and stellately tomentose outside. The flowers follow in continual succession from the same panicle throughout the summer. They are followed by the characteristic pods, containing a fair number of good seeds. It succeeds in every good garden soil, and the latter does not need to be irrigated, at least, along the Riviera. The shrubs do not exceed twelve feet, and on account of their irregular growth are best adapted for the shrubbery.

The fourth species, Brachychiton rupestris, K. Schum., may be considered a rarity in the gardens of the Mediterranean, and perhaps will always remain so. It is a native of Queensland, and must have been introduced in the later seventieth of last century. Nicholson, under the name of Sterculia rupestris, Lindl., gives a later date for its introduction. He states that it forms a good-sized greenhouse tree. That may be so, but in the open, as I saw it, it is of very slow growth, scarcely making any noticeable progress for ten or twelve years, and not exceeding four to five feet. It forms a thick, smooth trunk, which is quite soft and full of juice. It is said to be eaten by the natives. On account of this thick trunk it resembles the Bombax, and like these it is called the "Bottle Tree" by the colonists. Already, as a young plant, it shows a tendency to form a pyramidal crown, and the branches are more or less verticillate. It is smooth throughout, like the two first species. The leaves are cut into five or more narrow lobes, three to six inches long, but become entire, oblong-linear or lanceolate in age. I have never seen a flowering specimen.

Of the genus Sterculia itself, several species have been tried, but they are too tender for most parts of the Mediterranean region.

Another genus of this family valuable for the gardens of the sunny south is Dombeya. The most gorgeous species of this genus, however, D. Wallichii, Benth. and Hook. (or Astrapaea Wallichii, Lindl.), a very large-leaved tree from Madagascar, is, unfortunately, too tender for most Italian gardens. It never attains its normal size, and is frequently damaged by cold. Nevertheless, it sometimes flowers in spring. It must have a very sheltered place as protection against wind and frost.

A fine substitute for this gorgeous and tender tree was raised by a skilful French gardener, M. Cayeux, and named after him by M. Ed. André Dombeya Cayeuxii. Although not so big as D. Wallichii, it is perhaps finer and more graceful; it has the same habit, and its flowers are of a very pleasant colour. What is most essential, it is decidedly hardier. It is a tall shrub, hispid on the young parts. The petioles are four to six inches long, thickened at the base with two deltoid stipules. The leaves are roundish-cordate, more or less three-lobed, long-pointed, coarsely but sharply toothed, bright green, soft in texture, thirteen inches long and almost as wide. The peduncles are axillary, and drooping, about as thick as a pencil and reach six to nine inches in length. The flowers develop in a globose cyme, four to six inches across, composed of thirty to thirty five flowers, subtended by three to four convex bracts. Each individual flower is rotate, one-and-a-half inch across, Mallow-shaped, and of a lovely pale rose colour.

The plant is of vigorous growth and abundantly floriferous. Each leaf axil sends out a flower stalk. Flowers appear from Christmas till March in continual succession. It is evident that this plant must have a very sheltered spot if it is to flower and to display all its beauty during winter. It requires a good substantial soil and plenty of moisture when growing. Before it starts new growth, about June, it should be pruned back, otherwise the branches become too long and too weak. Doubtless it is one of the finest plants that the Mediterranean gardens can boast of, and should be grown wherever it is possible. It is easily propagated by cuttings taken from young side shoots.

Other Dombeyas which can be grown on the Mediterranean are shrubs like D. Burgessiae, Harv., from Natal, which in habit resembles Sparmannia africana; Dombeya Mastersii, Hook. fil., from Abyssinia, with pretty rose-coloured flowers, and a few others. However, none can compete with D. Cayeuxii, all have smaller flowers and are not nearly as ornamental.

All the other Sterculiaeceae found in gardens are shrubs. The rare Melhania Erythroxylon, R. Br., the "Red-wood" and M. Melanoxylon, Ait. (Fig. 15) the "Black-wood," both natives of St. Helena, succeed well on the shores of the Mediterranean, but apart from their botanical interest they are of no great importance as ornamental plants. Both species are said to be almost extinct on their native island and it is chiefly for that reason that they should be preserved in gardens, since they grow easily and may be increased by cuttings.

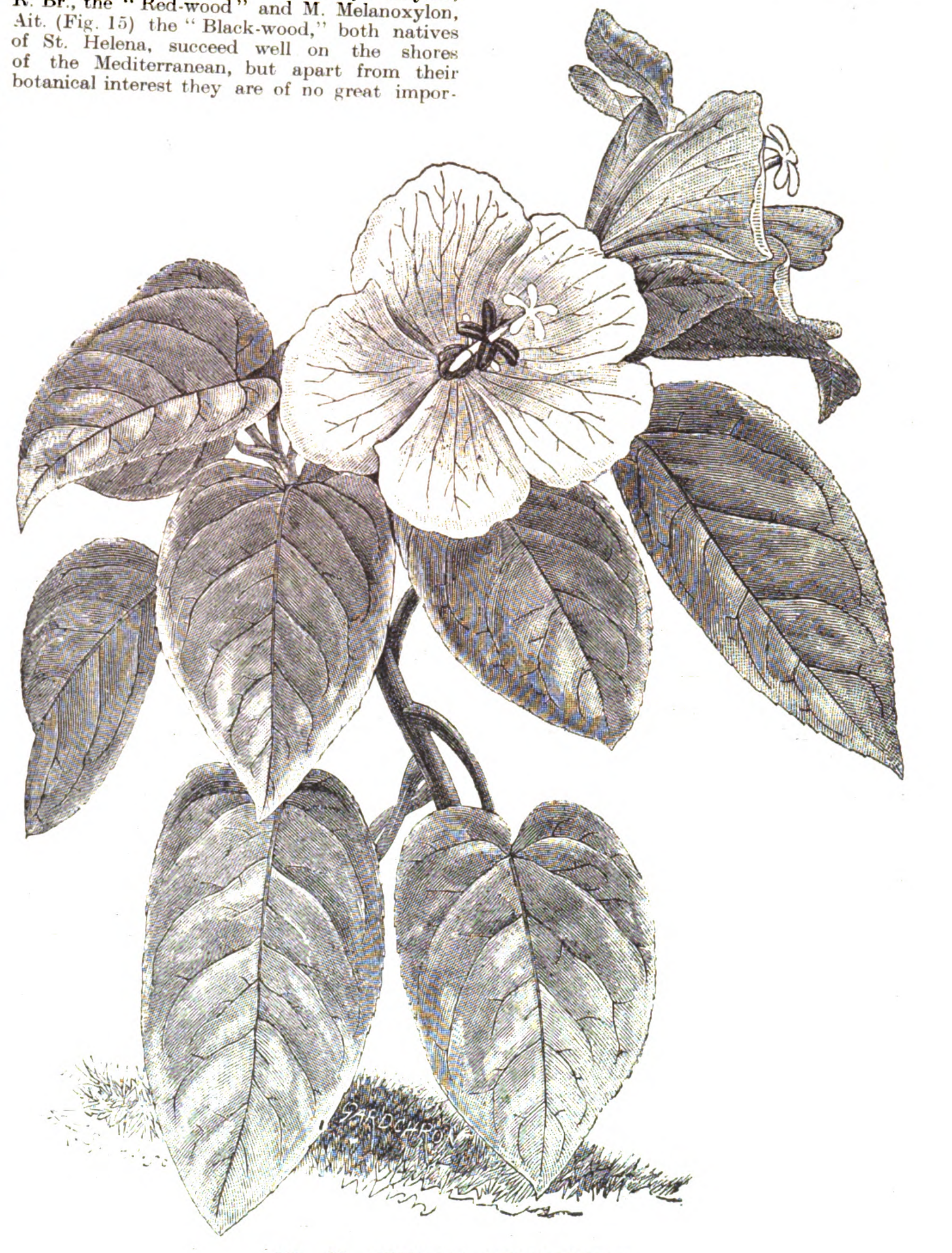

FIG. 15.—MELHANIA MELANOXYLON.

A few species of the vast genus Hermannia have always been favourites in gardens. They are South African, mostly small shrubs, with pretty little bell-shaped flowers in racemes, varying from yellow to red or purple. They are useful for bordering shrubberies, for rockeries or dry walls, and withstand the summer drought and the winters exceedingly well. It would be worth while to introduce a larger number of species, since they may be raised easily from seeds.

There are several other genera of this family occasionally found, such as Buettneria, Rulingia, Guichenotia, Thomasia, etc., all with curiously shaped small flowers, but of no great ornamental value, and only of interest to amateurs.

One larger shrub, however, deserves special mention: Reevesia thrysoidea, Lindl., named after the late John Reeves, an English resident of Canton, who introduced several beautiful plants from China. It is a pretty evergreen shrub, five to eight feet high, with alternate, ovate-oblong, pointed, dark green leaves two to five inches long. The creamy white flowers, though individually small, develop in flat, corymbose panicles, three to four inches across. They appear from May to June and are very attractive. It is a fine and interesting shrub for a sheltered, half-shady place. If too much exposed to scorching sun the foliage is apt to turn yellowish-green. It needs plenty of water during its growing period, and a soil not excessively heavy. Wherever it is grown to perfection it will form a most cherished shrub. It is propagated by marcotts [layers] or by cuttings of half-ripened wood under glass. Another species, R. pubescens, Mast., was introduced later. It has larger leaves, which are brownish tomentose underneath. The flowers also are a little larger and pink.

Pterospermum acerifolium, Willd., from India, is occasionally found in gardens along the Riviera. Although it never reaches any considerable size, it forms a useful and interesting shrub for shady and somewhat damp places. Its large, roundish leaves make it quite ornamental but I have never seen it in flower. The whole plant, at least, its young growth, is covered with a stellate tomentum.

The finest representative of the whole family is scarcely ever seen in Mediterranean gardens. I only know of one young promising specimen grown from native seeds, which did quite well. It is Cheirostemon platanoides (syn. Chiranthodendron platanoides, Baillon), the famous "Hand Tree" (*Bot. Mag.*, t. 5135). It is a large, stately tree, densely covered in all its young parts with a ferruginous felt of stellate hairs, and with large, deeply seven-lobed leaves, green above, yellowish or whitish on the back. The flowers are borne singly, and are very showy, their large, fleshy, purplish, or blood-red calyx, and the five widely protruding vividly red anthers, resembling the fingers of a hand or the claw of some animal. When Cortez conquered Mexico a specimen of this famous tree was found growing in Montezuma's garden. It was long believed to be the only existing plant, and superstitious tales of the natives were recorded. Alexander von Humboldt found it in forests about Oaxaca in Southern Mexico. It ought to be tried in the warmer parts of the Mediterranean region; it does not seem particular as to soil. Where it can be grown successfully it is sure to become one of the most valuable trees of the garden on account of its very ornamental foliage and wonderful flowers. *Alwin Berger.*

MESEMBRYANTHEMUM.

(Continued from p. 13).

51c.—C. exsertum, N. E. Br.—Stemless. Growths 1-1¾ inch high, 6 - 9 lines broad, and 5-6 lines thick, somewhat cuneately cylindric below, compressed, and two-lobed at the top (type S); lobes 2-4 lines long, slightly diverging, flat on the inner face, rounded on the back, obscurely keeled on the top, obtusely rounded at the top in side view; surface smooth and slightly harsh to the touch, glabrous, pale glaucous-green or whitish green, with a small patch of darker green at the base of the notch between the lobes, and numerous small dots of darker green scattered all over the surface, but less thickly on the lobes, and with the keel on the top of the lobes red. Flower rising far above the top of the lobes of the plant. Ovary entirely exserted. Calyx 4-5-lobed, whitish or with reddish tips to the lobes; tube 2-2½ lines long; lobes 1-1½ line long, oblong, obtuse. Corolla about an inch in diameter, expanding in the afternoon, scented; tube 6-7 lines long, much longer than the calyx, funnel-shaped, yellow; petals 5-6 lines long, ½ line broad, linear, acute or obtuse, recurved-spreading, entirely clear yellow, shining. Stamens numerous, in 4-5 series, all arising below the middle and the lower at the bottom of the tube, with the upper exserted; filaments orange; anthers yellow. Style 5 lines long; stigmas about 2½ lines long, filiform, slightly spreading, entirely exceeding the anthers, deep orange-red. Top of the ovary conical, green.

Little Namaqualand: Locality unknown, sent to Kew with other species by Professor Pearson in 1911.

This species might easily be mistaken for C. albescens when seen separately, but may be recognised by the lobes of the plant being flat (not convex) on the inner or notch side, by the surface of the plant being destitute of the microscopic points that cover C. albescens, and by the flowers also being different, the stamens being only just exserted and much overtopped by the stigmas, which are also of a darker red.

50a.—C. hahlenbergense, N. E. Br.—Growths described and figured as being 4-12 lines high and 3½-8 lines broad, but in the plants seen 3-7 lines high, 3-4 lines broad a 2-3 lines thick, compressed, cuneately obovoid, shortly 2-lobed at the top (type R); lobes erect, less than 1 line long and rounded on the inner face in the plants seen, but figured as being 2-3 lines long, slightly keeled along the top, which is rounded in side view; surface smooth, microscopically puberulous, slightly velvety to the touch, green or somewhat glaucous-green, distinctly dotted with darker green, often tinted with purple at the apex under full exposure to the sun. Flowers small, figured as being about 3 lines in diameter, yellow. Capsule when closed 1¼ line in diameter, when expanded 3½ lines in diameter, 4-celled, seeds few.—Mesemb. hahlenbergense, Dinter in *Fedde Repert., Beihefte* (*Succulentenforschung in Sudwest Afrika*), v. 23, p. 62 (1923); and Dinter and Schwantes in *Zeitschr. f. Sukk.* v. 2, p. 17 (1925).

Great Namaqualand: Near Hahlenberg Railway Station, in the region of Angra Pequena, Dinter 3746!

56a.—C. Roodiae, N. E. Br.—Growths of imported plant 5-6 lines high, 3-4½ lines broad and 1½-2½ lines thick, becoming under cultivation 5-16 lines high, 4-7 lines broad and 2½-3½ lines thick, compressed obconic-oblong, unequally or occasionally subequally 2-lobed at the top, with the notch ¾-3 lines deep (intermediate between types S and T); the lobes are subcontiguous, subterete and very convex or rounded on the top, and the orifice between them about 1 line long; surface smooth, glabrous, of a light green, or somewhat yellowish-green at times, not at all glaucous nor grey-green, usually with a few indistinct darker green dots that are pellucid when held against the light scattered over each lobe, but sometimes nearly or quite dotless. Calyx-tube 1½-2 lines long, partly exerted from the orifice, lobes 1¼-1½ line long, oblong, obtuse, pale greenish (but perhaps reddish under strong sunlight). Corolla 5-8 lines in diameter, expanding in the daytime; tube about 2 lines long, scarcely longer than the calyx-tube; petals in about 2 series, some 4 lines long, and ¾ line broad, linear, obtuse, pure white on both sides. Stamens in two series, one series arising from the base of the corolla and finally exserted from its tube, with the longer filaments about 3 lines long, pale yellowish; anthers light yellow. Glands in a circle around the top of the ovary, dark green. Stigmas 4, free, no style, finally about 4½-5 lines long, filiform, as long as or exceeding the stamens.

Van Rhynsdorp Division: near Van Rhynsdorp, Mrs. E. Rood.

This is a very distinct species, distinguished from all others at present known by its form, unequally lobed top, rather soft substance, light green colour and white flowers, which expand in the daytime. It is one of the very few in the genus that have no style.

Of this species I have seen only one plant, which had the appearance of having grown in the crevice of a rock. I believe it to be rare, and have great pleasure in naming it after its discoverer, to whom I am indebted for several interesting plants.

53a.—C. sororium, N. E. Br.—Stemless or with age forming short underground stems. Growths 1-1¾ inch high, 6-9 lines broad and 4-8 lines thick, cuneately cylindric or oblong, compressed and 2-lobed at the top (type S); lobes 3-6 lines long, often diverging, flat on the inner face, keeled on the back, somewhat obliquely acute or subacute in side view where the inner face and keel meet; surface smooth, glabrous, of a somewhat dull glaucous-green, with a small patch at the base of the notch and numerous small dots sprinkled all over it, all of a darker green, and when exposed to full sunshine the edges and keel of the lobes become red. Flower not rising above and usually well below the level of the top of the lobes. Ovary always included in the body of the plant. Calyx 4-lobed, more or less exserted; tube 2-2½ lines long, pale greenish; lobes about 1-1½ lines long, oblong, obtuse, whitish or pale greenish. Corolla 8-11 lines in diameter, expanding in the afternoon, not funnel-shaped; tube 2½-3 lines long, pallid; petals 45-53, in 2-3 series, about 5 lines long, and ⅓-¼ line broad, linear, obtuse, widely spreading, with recurved tips, bright light yellow on both sides, shining. Stamens numerous in about 3 series, anthers all at or shortly exserted from the mouth of the corolla-tube, pale yellowish. Style 3-4 lines long; stigmas 5, filiform, 2½ lines long and exserted above the anthers for all their length, slightly spreading, pale yellowish.

Little Namaqualand: probably from between Stinkfontein and Chubiessis, as it was sent by Professor Pearson along with C. bilobum. *N. E. Brown.*

(To be continued.)

INDOOR PLANTS.

DRACAENA.

WHILE the majority of the Liliaceae are remarkable for the beauty of their flowers, the genus Dracaena is an exception, being cultivated for its decorative value as an ornamental foliage subject. Despite the number of varieties of hybrid origin the old species hold their own.

Of the several distinct garden types, one of the best is D. fragrans var. Victoria (Fig. 16), a handsome plant when well grown, the leaves being yellow, with a broad median band of green. It is slow in growth, but retains its foliage and bright colour for several years. When the plants become leggy they may be ringed by making an incision in the stem below the lowest leaves and tying Sphagnum-moss about this part. The moss should be kept moist until roots appear, when the top should be removed and potted. Portions over two feet long may be successfully rooted by this method. After the removal of the top the stem will break into growth, and the resultant shoot, when a few inches long, may be inserted as a cutting, using screened Sphagnum-moss and sand as a rooting-medium. D. f. Victoria, in common with other members of the genus, requires a warm, moist atmosphere during its season of active growth, but in winter, a low temperature with an excess of moisture will cause the edge of the leaves to decay.

D. Sanderiana, a slender-stemmed species, with white and green leaves, is a fine subject for the plant stove. When established, it throws from the base long reed-like growths feathered with foliage. Cuttings formed of the young shoots root readily, and at the subsequent potting several plants should be placed in the same receptacle.

In general appearance, D. Godseffiana differs considerably from its congeners. The wiry, much-branched stems are clothed with whorls of variegated leaves, the creamy-yellow spots almost covering the whole surface of the leaf. Bushy plants may be grown in small pots, and make an effective edging.

D. Goldieana was introduced over half-a-century ago; it is one of the most handsome members of the genus, with closely-set, wide leaves, transversely banded with green and grey stripes. The stem is light, smooth and highly polished.

ERANTHEMUM PULCHELLUM.

FLOWERING in midwinter, when blue flowers are especially welcome, this Acanthaceous shrub is worthy of more extended cultivation. It forms a rounded bush, about two feet high, spangled with bright blue flowers, borne in the axils of green and white bracts.

Strong heat and plenty of moisture are essential for its successful cultivation, with drier conditions during the flowering period. After flowering, yearling plants may be cut back, shaken out, repotted, and grown on for a second season. Two-year-old plants usually give the best results.

CROSSANDRA UNDULAEFOLIA.

THIS summer-flowering member of the Acanthaceae is remarkable for the uncommon colour and quaint shape of the flowers. The flat, one-sided, five-cleft blooms are of a luminous salmon colour, and spring from the corners of an angular inflorescence.

The terete stems are clothed with whorls of glabrous, deep green leaves, which shine with an enamel-like gloss.

It is an erect-growing stove plant, from one foot to three feet high.

SANCHEZIA NOBILIS GLAUCOPHYLLA.

THE flowers of this plant are somewhat dingy in appearance, and are usually removed when in bud. It is a free-growing shrub-like plant, with lanceolate leaves nine inches long, glaucous green, with the mid-rib and veins margined with yellowish white; with age, or if too densely shaded, the foliage reverts to a uniform green, losing much of its attractiveness. It is one of the most easily cultivated of stove plants, and is propagated readily from cuttings inserted at any season of the year. This Sanchezia is a useful decorative subject, particularly in a non-flowering, young state. Several plants should be placed in one receptacle. If potted on, or planted out, it eventually forms a bush several feet high. *Fred. W. Jeffery.*

SEDUMS IN WINTER.

AMONG the more tender Sedums which have come through 16° to 18° of frost without injury is the shrubby S. prealtum. Several plants in pots of this species, put on one side and forgotten, were entirely unprotected, yet they are as fresh to-day as ever they were.

S. retusum, another sub-shrubby Mexican species, growing under similar conditions, has been rather badly cut back, but a worse fate has befallen that fine species, S. compressum, all plants being killed, even though protected by evergreen branches. S. Palmeri, however, has fared much better, most of the specimens being little the worse. Of the two last-mentioned, the latter is always the more striking as a foliage plant, especially at this season, when the leafage is a beautifully soft and glaucous emerald. The curious S. Stahlii is also among the survivors, though it often loses a good many of its curious, egg-shaped leaves at this season, and those that remain assume the dull colour of those of S. oreganum.

S. divergens makes a pleasing carpet of bright green, but here it does not take on the red flush which renders it so delightful in some gardens. On the contrary, that good all-round species, S. spathulifolium, is now a wonderful colour, the rosettes, two to three inches across, being a vivid red, paling to dove-purple at the centre. What form it is which affords this striking departure from the S. spathulifolium one usually sees in gardens I do not know. The leaves are distinctly redder, even in summer, than those of the type or the variety purpureum, and the rosettes are, as stated, unusually large.

The glaucous hue of S. hispanicum and S. dasyphyllum is always in evidence at this season, and S. Lydium, also a familiar, mat-forming species, associates well with them, for it still retains its late-summer crimson.

But in leaf-colour, few can compare with the little S. brevifolium, whose deep red, almost globular leaves, in four rows, are set in a blue-white mealiness of almost luminous brilliance. This tiny species is quite hardy here, and once it is established in the chink of a mossy or lichenous rock facing south it will soon form a colony, the little cast-off leaves taking root wherever they can find lodgment. The form of S. brevifolium I have here came under the name, "var. Pottsii," but I see that Dr. Lloyd Praeger does not recognise this as distinct. There appear to be many forms of this species, varying in size and other respects. *J.*

GARDEN TOOLS.

(*Concluded from page* 13).

IT is surprising how large a number of tools is necessary for the economic working of even a comparatively small garden. For ground work a spade, shovel, digging fork and manure fork are essential; the need for a pickaxe, a mattock and a crowbar often arises, and in the modern garden some kind of earth-borer to prepare holes for pergola standards, rose-poles, etc., is frequently required; while rakes hoes and cultivators of various patterns and sizes cannot be done without. Where new, undrained lands have to be brought under cultivation special draining tools are necessary. For planting, trowels, hand-forks and dibbers of good quality should be provided; a line and reel is a distinct advantage, and where bulbs are grown in quantity, a bulb planter is useful.

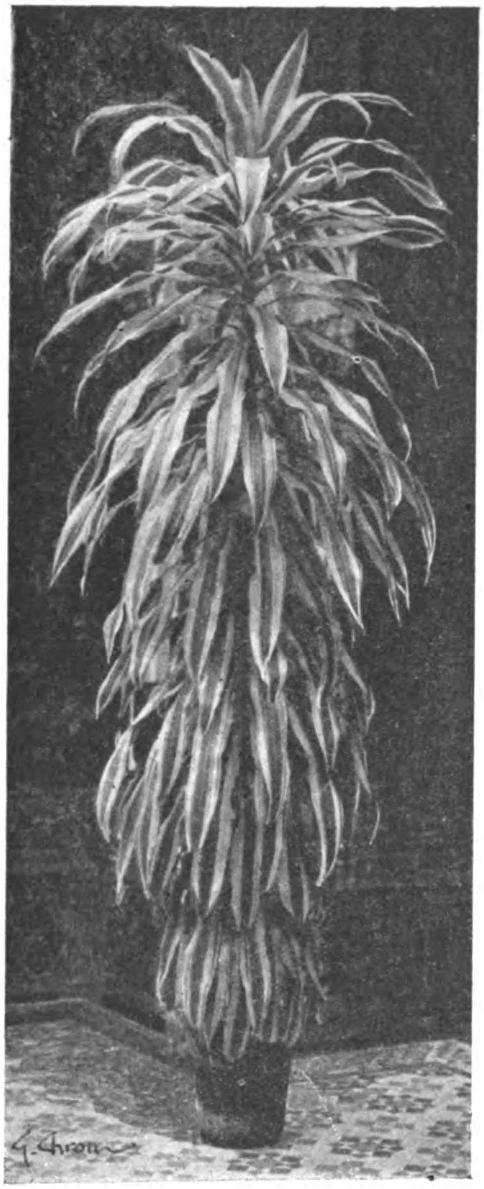

FIG. 16.—DRACAENA FRAGRANS VAR. VICTORIA.
(see p. 30).

Cutting and pruning tools form an important group, of which knives, secateurs and saws should be provided in at least two sizes. A branch pruner on a long handle saves a good deal of step work, and a Myticuttah is a very useful implement for close work. I know no ideal secateur, but a good parrot-bill pattern with double cutting blades is useful. A small hand-saw with short, curved blade, is a very useful implement, tackling awkwardly-placed branches with comparative ease. A small axe, or handbill, is desirable for pointing stakes, and where hedges exist, good, strong hedge-clipping shears will be necessary, while for topiary work nothing can beat small shears of the sheep-shearing type.

For transport of material in the garden, a wheel-barrow of moderate size is needed. This should be strongly made with a broad wheel, and be provided with a moveable top for the holding of leaves or other light material. In larger gardens, a combined hand-cart and plant truck is very useful, and a platform wagon on four wheels of narrow diameter is invaluable for moving heavy objects, such as trees, stone or metal figures and large vases. A swinging water-barrel, mounted on broad wheels, is always a great time-saver in conveying water,and where hoses are used strong reels for their convenient transport should be provided.

In connection with the distribution of water, water cans also play an important part, and influence the output of the man in a very high degree. They should be of convenient sizes to meet the nature of the distribution required, and for all-round, general purposes, it would be difficult to beat the Haws's pattern. A good syringe is indispensable if cleanliness is to be observed, and its timely use often obviates the need of sprays and sprayers. For small gardens, a spray syringe of the Abol type may be sufficient, but where large numbers of Roses and fruit trees are grown this will need to be supplemented by a knapsack sprayer or still larger sprayer of the engine type, while for large orchards, the modern power sprayer may be necessary.

Turf implements are expensive, but a good lawn is an essential feature of every garden, and it cannot be maintained without generous tool equipment. It is cheaper to have the best than to put up with inferior models. A well-built lawn mower, with ball-bearings, soon saves its cost in labour besides reducing the strain and upkeep cost of the machine. With the present cost of labour a motor mower, even for comparatively small gardens, is an economic proposition, and these have been so much improved in recent years that the ideal appears to be within sight. An attachment for carrying out surface cultivation during favourable weather in the winter season is very useful and time-saving. In this direction also a spiked turf-maul for puncturing the surface before the application of prepared top-dressings, and a scarifying whale-bone brush for spreading the compost after dressing, are extremely useful. An edging iron and a pair of edging shears are a necessity to keep the verges in good trim, and when turf is to be moved, a lifter and beater cannot well be done without. A garden roller is a necessity for lawns and other purposes, and the advantages of the water ballast type where a light or heavy implement can be had at pleasure, must be obvious to every-one. It is often difficult to do good work with a roller on newly-sown lawns, particularly those of small dimensions and a pair of treading boards strapped to the feet of the operator will be found preferable.

The scythe is almost a forgotten tool in these days—perhaps one ought to say that the scythesman is defunct—yet it is a tool that cannot easily be done without for cutting purposes. One should not be perturbed when the "old man" of the garden takes time in setting his scythe with such meticulous precision; it is an object lesson in the study of angles and although he would laugh at the word "science," he is really applying those scientific principles, the application of which is so necessary in setting the handles of tools generally to meet the need of the operator.

Screens and sieves have their uses in garden craft, and help in the grading of sand, ashes, gravel and soil for various purposes. The sieve is often a much abused implement of the potting-shed, in that it leads the young and inexperienced hand to spoil good materials by removing from them the fibrous and lumpy matter so essential to good potting composts.

In this general review of tools the list of useful appliances has by no means been exhausted. There are the Asparagus knife, fruit and flower gatherers, Daisy or Dandelion grubbers, slashers, Potato setters, grindstones and whetstones, subsoil tester, lawn sprinklers, fumigators, powder distributors, hammers, brooms and brushes, straight-edge, spirit levels, ground trammel, thermometers, leaf sweepers, baskets of various patterns and designs, vermin traps, steps and ladders, stoking tools, and a host of small tools of everyday use, all of which are necessary, but many of which serve more or less special purposes.

It will be seen from these remarks that the tool equipment of a garden is a matter of considerable expense, hence the conservation, care and preparation for use of them should be given serious thought. For the storing of tools of every description a dry shed is essential, and hanging positions should be provided wherever this is practicable. All implements with metal blades—and these constitute the majority of tools—should be thoroughly cleaned and oiled before being returned to their positions, and time allowed for this work greatly promotes tool efficiency. Lines, brooms, baskets or carrying sheets should never be put away wet, but hung outside till favourable drying conditions occur. On loamy soil, the edges of spades and hoes wear sharp, but on stony soil considerable sharpening is often necessary, and for this purpose a flat file, which can be carried in the pocket, is very useful. Pruning tools should always be kept with a keen edge for which nothing is better than a carborundum stone. The wheels of barrows and trucks should be regularly greased or undue wearing in important parts is bound to follow quickly, and an occasional coat of preservative to the bodies adds considerably to the life of the implements. Hoses should be thoroughly dried and rolled on to reels for storing, and syringes and sprayers should be rinsed with clear water after being used for insecticides, to prevent corrosion, while water cans should be stood upside-down to drain before being stored. In using mowing machines special care should be taken that all parts are adequately lubricated, and that the machines are thoroughly cleaned after use. *W. Auton.*

VALUE OF A GARDENER'S DIARY.

The advent of the New Year is an opportune time to present this subject to young gardeners.

When correctly compiled, a garden diary may be made both useful and interesting, and the facts contained in it may one day prove to be a source of valuable information to the author.

None should consider themselves so efficient that they can afford to neglect recording events and operations. Reliance upon the efforts of others in this respect, although sound in principle fails to give the maximum amount of information because the details would probably not be applicable to all districts and conditions.

Furthermore, once a fact is written down it is much more vividly impressed upon the mind of the writer.

A common mistake made by those who keep garden diaries is to make a note only of the work they actually perform themselves. A better method would be to make a point of finding out all the operations in progress throughout the garden. This could be accomplished either by an enquiry from the heads of the various departments, or, better still, by frequent tours of the garden where this is permitted. Probably this would prove rather difficult in very large establishments, but much can be gained by possessing the enquiring habit, provided it is of the right kind. A diary may be of the greatest assistance in future years, especially to those who are responsible for the maintainance of supplies of flowers, fruits and vegetables, and particularly for the timing of crops, so as to have them available for special functions, exhibitions, etc.

A diary is indispensable as a means of ascertaining the period occupied from the sowing of the seed to the maturing of the crop, and in some instances notes of the duration of the useful season would be advantageous.

The duration and time of flowering of the most popular hardy plants should be noted. This may seem a trivial matter, but a record of this may some day prove very valuable when arranging for a display for a particular occasion. The cultivators of such plants as Chrysanthemums and Carnations must find their diaries indispensable, as in these cases much depends upon records of the correct dates for propagation, "stopping" and disbudding.

The writers of weekly calendars for the gardening Press undoubtedly find their own previously well-kept diaries invaluable, as they contain actual facts which can be elaborated for the benefit of the less experienced.

A note should be made of the date of the first appearance of garden pests or diseases. This information should prove most useful in combating those troubles in future years. A knowledge of the time of attack enables the gardener to apply a preventive measure at the right moment, thus very often obviating the development of the disease or pest.

When the time comes to take charge of a garden weekly references to a diary will be of considerable help, and when once the additional notes of the first year's experience are completed, the task will be found much easier in succeeding seasons.

It would also reveal any slight mistakes in methods, such as sowing seeds too early, or too late, as the case may be, and these could be rectified in future years.

A note of any outstanding feature in the weather may prove interesting, such, for instance, as the effect of frost upon certain out-door plants, fruit trees, ornamental trees trees and shrubs, etc. It is surprising what a lot of useful information may be acquired by a study of meteorology.

A diary may also be made to record the cultivation of certain subjects in the most concise form. To illustrate my meaning take, for example, the cultivation of Peaches under glass. By keeping records of the temperatures at the different stages of development, together with the dates of starting the house, the flowering period, time for disbudding, the thinning of the crop, the duration of the stoning period, exposing the fruit to sunlight, fruit ripe, pruning and cleansing, etc., much useful knowledge is acquired.

Notes on the items to be recorded during the course of the year should include the dates of all such operations as seed-sowing, all forms of vegetative propagation, germination and flowering periods, the many stages of potting, planting and transplanting, the thinning of vegetable and fruit crops, stopping and disbudding: all forms of pruning, the protection and hardening off of plants, applications of manures and the various spray fluids and powders, etc.

In the actual compiling of a diary it is advisable to carry a small note book, or better still, the R.H.S. Diary, and make brief notes as they present themselves in the spaces set apart for each day.

The copying out of these notes in ink into a larger, permanent book capable of holding several years records may be done in leisure moments. *J. Wilson, Wisley.*

FORESTRY.

THE INFLUENCE OF PROLONGED DAYLIGHT IN THE VEGETATIVE SEASON ON THE QUALITY OF CONIFEROUS TIMBER GROWN AT HIGH LATITUDES.

Among woodworkers generally it has for long been known that the finest qualities of the European Coniferous timbers we import come from high latitudes. The timbers of the Scots Pine and Norway Spruce—the "redwood" and "whitewood" respectively of the North European timber trade—imported from the White Sea region of Russia have always had the reputation of being the finest qualities of their respective kinds in the market, and within comparatively recent years the timber of the Russian or Archangel Larch, which is probably merely a geographical form of the European species from practically the same region as the Scots Pine and Spruce, has established for itself a strong claim to recognition as a structural timber of the highest class.

The most familiar explanation of the superior quality of these North European timbers is that it is due to their being the produce of forests that have not been planted or tended by man—that is, of forests that have been self-sown and have grown and matured naturally. But the strongest argument against this view is that timber produced under similar circumstances at lower latitudes is not of equally fine quality.

We are well acquainted with the fact that plants vary more or less according to the altitude or latitude at which they occur, and that, as a general rule, increase in altitude or latitude brings nanism in its train. But ideas as to how climate is affected by altitude or latitude are sometimes very hazy. For example, in a comparatively recent work on horticulture it is stated that "altitude produces pretty much the same climatic conditions as latitude, i.e., roughly speaking, 600 feet rise at the equator ensures a climate somewhat similar to that found one degree of latitude from the equator, and so on." As regards some climatic elements, it is quite true that increase in altitude at low latitudes produces conditions which assimilate in some respects to those at sea level at higher latitudes; but when we consider the question of the variation in the length of the day at different latitudes, and the way in which sunshine is distributed over the globe at the various seasons in the course of the earth's revolution round the sun, the matter assumes a different aspect.

Were the rule given above followed out, at the equator it would require an elevation of over 14,000 feet to produce a climate similar to that at sea level at either of the tropics (23½° N. and S.), and of 54,000 feet (10¼ miles) to produce a climate similar to that at sea level at either of the poles. But a little reflection will show that at the equator the only effect which these enormous elevations would have upon the duration of the sunlight would be to increase by a very small amount the approximately equal daily instalments of it which the earth receives at sea level there all the year round, while at either pole a mountain peak would require to have an altitude of approximately 360 miles (over four times the height at which there is a sensible atmosphere) to catch a sunbeam at the winter solstice!

It will thus be seen that, however much increase of altitude at low latitudes may tend to assimilate some climatic elements to those at sea level at higher latitudes, as regards illumination by sunlight there is no analogy whatever between the conditions at great elevations at or near the equator and sea level at or near the poles.

It is only at the equinoxes that, for a very brief period, the daily duration of sunlight is the same over the whole of the earth's surface, and then the chemical intensity of the sun's rays varies according to latitude, being practically negligible at the poles and at its maximum at the equator. Within the tropics there is practically no seasonal interruption to plant growth throughout the year, but as we proceed to higher and higher latitudes, both north and south of the tropical zone, the interruption to growth becomes more and more pronounced, and the vegetative season is compressed into a shorter and shorter period until, at the northern and southern limits of plant life, it is restricted to but a few weeks.

Theoretically, there is, of course, a seasonal change within the tropics, and on the equator itself there are two "summer" and two "winter" seasons annually; but the difference between summer and winter anywhere within the tropics is so slight at sea level as to be almost negligible. *A. D. Richardson.*

(To be continued).

APPLES IN SURREY.

Surrey is not considered by pomologists to have great attractions as an Apple county, and the soil in the Woking district is certainly far from being of the substantial, loamy character usually regarded as essential for successful Apple culture. Nevertheless, the superb collection of one hundred varieties recently exhibited by F. C. Stoop, Esq., of West Hall (gr. Mr. G. Carpenter), was undoubtedly equal to any that the large growers of any county could have put up. I can imagine the astonishment of many Kent and Hereford growers on seeing so wonderful a collection from this district. Such an object lesson lends weight to the contention of many enthusiastic fruit growers, that there is room for a much wider development of Apple orchards throughout the country, as it offers ample evidence that good fruits may be grown on a wider range of soils than many experts imagine.

A few notes on the making and development of the orchard in which these Apples were grown may be of interest to readers of *The Gardeners' Chronicle*, and seeing that the underlying object of the planting scheme is to test the relative values of most of the varieties in cultivation at the present time, the plantation is of special interest to growers generally, and for those of Surrey districts in particular.

The site was part of an exposed, low-lying, undrained field of rough pasture, with a little shelter on the north and east, and the area planted is about two-and-a-half acres. The soil is somewhat heavier than is usual in the district, but it has no more depth than about eighteen inches, and overlies Bagshot sand. Draining was effected by opening a substantial ditch on two sides of the field, and laying two-inch drain-pipes across the field into the ditch. The preparation consisted in ploughing and subsoiling the field to a depth of about eighteen inches, and as no farmyard manure was available a surface dressing of accumulated leaf-soil and vegetable refuse was given.

Most of the trees were planted in the season 1919-20. They are all of the bush type, and worked on a good, dwarfing, Paradise stock: the varietal number of the stock is not available, however, as the trees are prior to the date of much of our present knowledge in this direction. Planting was simply carried out by digging holes of adequate size on the ploughed and subsoiled area, without any further preparation. The trees are planted in rows, twelve feet apart, the system of alternating positions in the rows being adopted. The knife was not used in the year of planting, except to remove bruised roots.

The total number of trees is 700 in 140 varieties. As time goes on the number of varieties will probably be reduced, as it is intended to weed out varieties of relatively little value, and regraft with others of proved merit. The plantation demonstrates the fact that private enterprise—from which horticulture has reaped such great benefits in the past—still exists. Valuable information is already being obtained, and the behaviour of many varieties, as time goes on, should prove highly interesting and instructive.

The routine cultivation in the plantation is carried out on up-to-date lines; the surface is kept clean by horse labour, so far as practicable, the spaces immediately around the trees being worked by hand. Spraying is systematically practised, and the trees are models of cleanliness.

In January and February the whole plantation is sprayed with Carbo-Krimp. Trees infested with scab are sprayed in April and again in May with Bordeaux mixture, and during the same months they are sprayed with lead-arsenate for leaf-eating caterpillars, while if aphides appear on individual trees they are immediately destroyed with a nicotine wash. From June onwards windfalls are systematically gathered up and destroyed by deep burial. If woolly aphis appears, affected parts of the trees are painted with methylated spirits. Grease-banding is done early in October, and cut surfaces made during winter pruning are dressed with Stockholm tar, this being an excellent preparation to prevent infection by spores of fungi.

Except for surface mulchings of decayed vegetable manure, no organic manures have been applied, but it has been the practice to dress the plantation every second year with basic slag, at the rate of 8 cwt. to 10 cwt. per acre. In the second and third years there was a sprinkling of fruits on many of the trees, and the crops have gradually increased, until in the past season something like 400 bushels were gathered, all of superb quality and appearance.

The following varieties were included in the gold medal collection:—Adam's Pearmain, Allen's Everlasting, Allington Pippin, Alfriston, American Mother, Annie Elizabeth, Arthur Turner, Autumn Pearmain, Barnack Beauty, Baumann's Reinette, Beauty of Kent, Belle de Boskoop, Ben's Red, Bismarck, Blenheim Pippin, Braddick's Nonpareil, Bramley's Seedling, Brownlee's Russet, Cox's Orange Pippin, Cox's Pomona, Cornish Aromatic, Cockle Pippin, Court Pendu Plat, Claygate Pearmain, Charles Ross, Crawley Beauty, Christmas Pearmain, Delicious, Duchess' Favourite, Duke of Devonshire, Dutch Mignonne, Ellison's Orange, Emperor Alexander, Encore, Fearn's Pippin, Foster's Seedling, Gascoyne's Scarlet, Gloria Mundi, Golden Noble, Golden Spire, Gravenstein, Hambling's Seedling, Hormead Pearmain, King Edward VII, King of the Pippins, King of Tomkin's County, James Grieve, Lady Henniker, Lane's Prince Albert, Lord Burghley, Lord Derby, Lord Hindlip, Loddington, Laxton's Superb, Margil, May Queen, Mère de Ménage, Monarch, Mrs. Phillimore, Newton Wonder, Norman's Pippin, Norfolk Beauty, Norfolk Beefing, Orlean's Reinette, Peasgood's Nonesuch, Rambour Papaleu, Rev. W. Wilks, Reinette Rouge Etoilée, Ribston Pippin, Ross Nonpareil, Royal Jubilee, Rosemary Russet, Rival, Roundway Magnum Bonum, Sandringham, Schoolmaster, Scarlet Nonpareil, Sir John Thorneycroft, Striped Beefing, Sturmer Pippin, Stirling Castle, St. Edmund's Russet, The Queen, The Old Nonesuch, Tom Putt, Tower of Glamis, Tyler's Kernel, Warner's King, Washington, Wealthy, Worcester Pearmain, Wormsley Pippin, Wellington, Wyken Pippin, William Crump, Comrade, Geo. Carpenter Victory and H. Shoesmith, the last four varieties being seedlings raised at West Hall.

The following twelve dessert varieties and twelve culinary varieties have, up to the present, been the most successful and persistent croppers: Dessert:—Allington Pippin, Charles Ross, Cox's Orange Pippin, American Mother, Duke of Devonshire, Ellison's Orange, James Grieve, King of the Pippins, Ribston Pippin, St. Edmund's Russet, Worcester Pearmain, Rival. Culinary:—Beauty of Kent, Annie Elizabeth, Cox's Pomona, Crawley Beauty, Bismarck, Edward VII, Golden Spire, Lane's Prince Albert, Lord Derby, Monarch, Rev. W. Wilks, Stirling Castle. This selection should be a valuable guide to growers in Surrey who intend planting Apple trees before spring arrives. *P. C.*

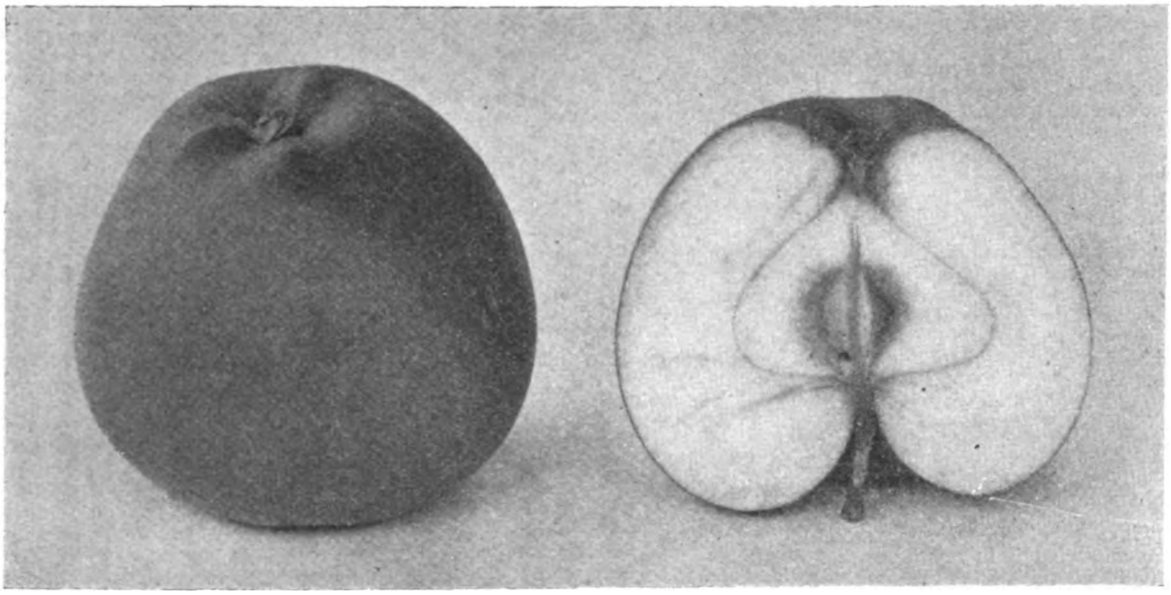

FIG. 17. APPLE STURMER PIPPIN.

(see page 34).

FRUIT REGISTER.

APPLE STURMER PIPPIN.

In a census of the best late Apples the variety Sturmer Pippin would be sure of a high place and probably come out top, for apart from its splendid flavour it is a general favourite with growers. Hogg states that it is one of the most valuable dessert Apples of its season. "It is of first rate excellence and exceptionally desirable both on account of its delicious flavour and arriving at perfection at a period when the several favourite varieties are past." This is indeed high praise, but fully deserved.

Now that the season of most Apples is over, that of Sturmer Pippin is scarcely yet reached, for it is at its best from February to June, so that it is one of the latest of dessert Apples.

It is said to have been raised from Ribston Pippin crossed with Nonpareil, by Mr. Dillistone, a nurseryman at Sturmer; both Hogg in the *Fruit Manual*, and Bunyard in *A Handbook of Fruits* state that Sturmer is near Haverhill, in Suffolk; Sturmer itself is in Essex.

As is necessary with late Apples generally the fruits should be allowed to remain on the trees for so long as possible. The tree is hardy and does well on either light or heavy soils. The illustration in Fig. 17 shows the shape of the fruits; those depicted are a little below natural size.

The flesh is crisp, juicy, greenish and pleasantly flavoured. The skin is green to greenish-yellow, and almost entirely covered with brown russet, with a tinge of dull red on the side next to the sun. It is a very distinct Apple and one that is easily recognised, the red flush on the russet being a pronounced character.

APPLE BEN'S RED.

Experience is a very dependable teacher; probably none better; but there are times, however, when experience, even in the same county, leads to quite different conclusions. As an illustration, there is a description which Mr. E. A. Bunyard applies to the Apple Ben's Red, in *A Handbook of Fruits* (Apples and Pears). He describes the flesh as "firm, pale yellow, sweet, aromatic." "A very useful fruit, valuable for its great cropping qualities." Mr. Bunyard is a Kentish grower, but obviously he has had quite a different experience with the variety to that of Mr. Weston. I have had a similar experience with Ben's Red, which was the reason why I commended it in my note. Had Mr. Weston stated that the class at Vincent Square was for Ben's Red only, my comment (vol. LXXVIII, p. 435) with regard to the judges would have been superfluous. Yet, the point that was in my mind holds good, *i.e.*, that those responsible for the show would not have arranged a special class for Ben's Red if they had considered the variety unworthy. *Geo. H. Copley, N.D.H.*

VINE MILDEW.

On reading the article on this subject by Mr. J. Wilson, in *The Gardeners' Chronicle* for November 28, 1925, I am forced to the conclusion that the action of sulphur in eradicating mildew is not generally understood. Raw sulphur itself will not do it. There must be sufficient heat (not less than 85°) to produce a sulphur vapour, and if this is produced in sufficient quantity in a closed house mildew cannot live.

Ordinary flowers of sulphur will retain much of its potency for a considerable time. When used for painting vines in late autumn or winter, it has no immediate effect, but if not washed off by syringing it will retain sufficient strength during the following season to prevent mildew developing, unless there is a new infection. There are various methods of using sulphur, but they all show that a portion of the chemical must be vaporised before any beneficial results can be attained. Campbell's vaporiser is effective if used properly, but it leaves a coating of dust on the berries. This may be removed with a syringe and clean soft water on the morning following vapourising, while the berries are still warm, and before there is dew on them. The water should be clean, without lime, and used abundantly (though nor forcibly) or there will be a deposit on the lower part of the berry. Where there is a goodly amount of bloom on the berries the water will no do harm. As a partial confirmation of this, I may state that I have brought home Grapes from exhibitions covered with dust, plunged them several times in a tub of clean water, hung them up, blown most of the water out of them with a pair of bellows, and exhibited them again.

Another plan is thus described in my little brochure *Vines at Longleat*, published in 1882: "The pipes are made hot while the ventilators are still open, a wet rag is wiped along a couple of yards at a time and sulphur is dusted on from a piece of muslin. In the evening after the sunheat has mostly gone and the pipes have been made as hot as possible, the house is closed, when a bluish mist will be seen to rise from the sulphur which will make one's eyes smart, and in the space of two hours will kill all the spores of mildew. It is scarcely safe to use such a severe measure before the Grapes have grown to the size of a small Pea."

But I have not found it necessary to resort to the last-named remedy for many years, painting with sulphur and soft soap in the winter having been found sufficient, excepting in one case. This was where a vine was planted outside a building and trained up some twelve feet, where it entered a house on the second floor. The inside portion was painted, but the outside was not, and there were some short growths on that part which probably carried mildew spores.

I must emphasize the fact that I never syringe vines excepting for the purpose of cleansing them or applying an insecticide, and the rods are never peeled or scrubbed, so the sulphur remains on them from year to year.

Another remedy is made by boiling quicklime and sulphur together and applying the mixture, after dilution, with a syringe. I forget the proportions, but probably it is the same thing as that sold under the name of lime sulphur. The home-made article has the defect of discolouring white paint, but it is death to mildew as well as red spider, and may be used advantageously and freely where there is no paint.

We sometimes have cases of emergency to deal with. I had a case of mildew this last season when the fruits were about the size of small Peas. As the Grapes were intended for home consumption, a homely remedy was applied. Sulphur will not readily mix with clear water, but with the smallest quantity of soap it will do so. Sulphur was thus mixed to the consistency of cream, and applied abundantly over leaves and fruit with the finger against the nozzle of a syringe. The house was closed and the temperature rose to between 80° and 90°; the mildew was immediately killed. Very little trace of the sulphur could be seen on the fruit when it was ripe, and there were no marks on the berries, excepting those made by the mildew before it was checked.

I am reminded by a friend (a gentleman's gardener) that I frightened him by doing the same thing to his Grapes some years ago. There were no marks of the sulphur left, and he has never had mildew on his vines since. He now always gives his vines, when dormant, a good coating of sulphur and soft soap and never syringes them.

While the vines are quite dormant, soft soap, at the strength of half-a-pound to the gallon of water, may be used. It is important to paint thoroughly the parts around the buds. Growers are often told to be careful about damaging the buds, but well-developed buds have several coatings of scales to protect them, and if a soft brush is used, without applying undue pressure, they are not likely to be injured. The soap at this strength will do a great deal towards killing the spores of mildew, and also the hibernating red spider, supposing the latter has not been eradicated while it was still active. Should a few of either of these enemies be left alive they are most likely to succumb to the action of sulphur when the heat becomes sufficient to vaporize it.

Sulphur, when used properly, deserves more credit than it usually gets. During the summer of 1924 some Roses were badly affected with black spot disease on the leaves, and many of the leaves dropped. The plants were syringed with a mixture of soft soap, four ounces to the gallon, and as much sulphur as could be forced through the nozzle of a powerful syringe. Two or three hot, dry days fortunately followed, and the disease spread no further. During the past season there has been very little of the disease on the plants thus treated, though others in the immediate neighbourhood were badly infested. *Wm. Taylor, Bath.*

—Mr. Wilson's remarks on vine mildew were very interesting and useful, as this disease has always been very troublesome and worrying to growers. I have seen numerous remedies tried, but none was of avail in completely eradicating the disease. I have, however, been successful in doing this with a preparation applied in winter.

In February, 1924, when I came to these gardens, I was informed that mildew was very prevalent in the vineries. One is a Muscat house, and in this vinery mildew was very bad indeed. It was too late to proceed with the winter treatment of the rods that year, and my only effort was to check it during the growing season. Mildew appeared a few weeks after the berries had passed the stoning stage, and in a very short time, every leaf, bunch and berry was covered with white. It was necessary to use my special specific at that time of the year in liquid form and spray it on the vines. The mildew was killed, but it appeared later, and the spray fluid slightly damaged the foliage, proving that it should be prepared as a paste and used during the resting stage on the rods and pipes. The chief ingredient in my composition is salt. A mixture of sulphur, Gishurst's compound and carbolic soft soap is made, and half-an-ounce to one ounce of salt used in every pint of the mixture. Spraying the woodwork of the house is, of course, essential. In December, 1924, I treated the vineries as stated, and not a speck of mildew has shown itself on the vines since, although no vineries were worse affected with mildew than those here. Spraying the rods should be discontinued when the vineries are started, otherwise the specific will be washed off when syringing the vines with clear water. *F. W. Dodd, Parkfield Gardens, Mill Hill, N.W.7.*

VEGETABLE GARDEN.

THE CULTIVATION OF ONIONS.

My experience as a county lecturer leads me to believe that there are two classes of Onion growers; one which treats the crop with special care, and one which leaves the crop largely to look after itself. Shortage of labour is not always the factor that places growers in the second class. The favourable effects of special care are so well marked, however, that the former class is increasing every year, and I propose to describe the method by which it works.

The seeds are sown in early January, in a temperature of 65°, and when the seedlings have germinated and stand erect they are transplanted into boxes or thumb pots. The latter are the best media for the nursery-bed stage, because the seedlings may be planted out without experiencing a check in their removal. The actual time for planting out varies in accordance with the weather, but mid-April is the date for which to aim.

By mid-April the Onion seedlings should be hardened off thoroughly. If the crop is to be a success, the plants should be set in soil which has been thoroughly worked to the depth of two spits during the winter. The present is an appropriate time for the work, and farmyard manure at the rate of one ton per one hundred square yards should be incorporated as it proceeds. A dressing of soot and wood ash, each at the rate of four ounces to the square yard, will prove helpful if forked in to a depth of four inches a fortnight prior to planting out.

The knowledge that Onions appreciate a firm soil is deep-seated in the gardener's mind, but zeal may proceed before wisdom in this matter. Naturally tenacious and firm soils are often artificially made too firm for the success of the crop. Light pressure only is needed in such cases. Light soils require considerable pressure in order to give them the proper texture. Onions should have one foot of space each way for proper development, and when planting, it is advisable to bury the bulb to about half its depth.

After planting, the cultivator may rest on his oars until the critical time for feeding arrives. Feeding too early results in thick necks, and feeding too late causes the bulbs to split. I have evolved a system of feeding the three thousand plants which I cultivate annually, and it answers well. It is based on a modest knowledge of plant nutrition.

The period during which the crop receives special feeding covers six weeks and is divided into three stages of a fortnight each. During the first fortnight the formation of roots is encouraged by four applications of superphosphate (30%), at the rate of one ounce per plant. [? Eds.] During the second fortnight each plant receives four applications of nitrate of soda, at the rate of half-an-ounce, for the purpose of stimulating leaf-development. During the third fortnight the plants are ready for storing material in the bulb, which process is assisted by four dressings of sulphate of potash, each plant receiving half-an-ounce. In a forward season I commence feeding in mid-June; in a late season at the end of that month.

When the crop shows signs of ripening it is a good plan to assist nature in regard to maturation by bending the stems over, about four inches above the bulb. During September the crop should be lifted, the bulbs ripened thoroughly and stored in a dry, frost-proof place.

No discussion on Onions is complete without some reference to the Onion fly, which makes its withering presence felt every year. I maintain that the method of culture above described is in itself a powerful weapon in the armoury of preventives, because the plants are strong all through their season of growth and therefore able to resist attack. This method of culture, however, is not in itself sufficient to give complete immunity, which is only secured by fortnightly applications of paraffin emulsion, from the date of planting out to mid-August.

After testing many varieties of Onion, I believe Premier, Ailsa Craig and James' Long Keeping to be the best. *Geo. H. Copley, N.D.H.*

HOME CORRESPONDENCE.

The Editors do not hold themselves responsible for the opinions expressed by correspondents.

The Destruction of White Fly.—I was greatly interested in Mr. Copley's remarks (vol. LXXVIII, p. 488) on this subject, but my experience differs a little from his. I have known white fly as a greenhouse pest since 1900, but no special effort was made to destroy it, and it did not appear to increase. It became a menace in 1918, and from then until 1922 it threatened to destroy all our inside crops, and was rapidly spreading to those outside. Why it should have so suddenly reached epidemic form I can only ascribe to two theories. (1) Garden staffs became greatly depleted from 1914 onwards, making cleanliness in plant houses impossible; (2) during this period many large plants growing in brick pits or large pots were destroyed; may be these plants harboured insects that did no harm to vegetation, but which preyed upon the eggs of the white fly or even upon the white fly itself. Since 1922, I am happy to state that it is my experience this pest is diminishing in numbers. With regard to host plants, the white fly has a decided preference for certain kinds, and although it will exist on others it will not lay its eggs upon them. I could never understand how such a frail insect could lay such a large egg, but I have since discovered that when the eggs are laid they are invisible to the naked eye, but grow until they develop into the fly. Heat seems to be a large factor in determining the length of time required to hatch the eggs. When a house is fumigated with tetrachlorethane, or one of the preparations containing this chemical, most of the flies are killed, but some are only narcotized and revive in twenty-four hours; the eggs are not affected, and may start hatching out next day, and this process goes on; therefore, even a weekly fumigation will not entirely destroy this pest, although it will hold it in check. Mr. Copley was fortunate if he found the tetrachlorethane did no damage in a mixed house. Some plants will not withstand this chemical, and unfortunately, there is absolutely no guide to tell which plants will suffer. I gave a house of mixed succulents a very light fumigation recently and found that while Cotyledons were unharmed, Kalanchoes suffered, but what is even more remarkable some species of the genus Crassula were not harmed, while other species suffered badly. Care should be taken to test everything: it is a good plan when fumigating a house to put a plant of as many different subjects as possible into the house, and then make notes for future reference. Between the fumigations I spray the undersides of the leaves with XL ALL insecticide, at a strength of one part to twenty parts of water. *P. Meyer, Cardiff.*

Late-flowering Varieties of Chrysanthemum maximum.—It may interest your readers to know that I have raised two distinct varieties of Chrysanthemum maximum from a cross-fertilised flower, and both came into bloom in November from seeds sown late in spring. They are distinct from each other, one having a perfectly smooth stem and leaf, while the other has white, hairy down on the stem and underside of the leaf. In each variety the flowers are white, I think they may prove valuable for cut flowers, grown in a cold house during winter. Are these the first of their kind to come into flower the first year from seed? The experience of others would be interesting. *W. Sellens, Woking.*

Schizostylis coccinea.—On page 447, *A. T. H.* repeats the often printed story that a pink-flowered variety of this plant, to which Mrs. Hegarty's name has been attached, originated in an Irish garden: no doubt the particular plant was first found there, but it may be as well to place on record the fact that in the old Orange Free State and Natal, a pink-flowered variety grows on spruit banks side by side with the red-flowered type. Roots of it were sent to me in 1905 by a friend who was then at Witbank, but as it seemed a poor thing, and far less desirable than the type, it eventually found its way to the rubbish heap. *A. Grove.*

Carnation Diseases.—Mr. Allwood is doubtless right when he states (vol. LXXVIII, p. 455) that Carnation stocks should be changed more frequently. The obstacle to doing so is the cost of renewing stock at present prices. This is the reason why gardeners are compelled to exchange cuttings with each other. The remedy lies with the Carnation specialists, who would doubtless benefit themselves as well as growers if substantial reductions in prices were made. They might follow the lines adopted by the Chrysanthemum specialists; with them, a novelty remains a novelty for only one season. The next year it can be purchased at one-fifth its original price, and soon reaches lowest prices side by side with the oldest catalogued varieties. Can the same be said of Carnations? I saw recently, catalogued and priced at five shillings each, a variety which we grew more than a dozen years ago! *Marmion.*

SOCIETIES.

BRITISH MYCOLOGICAL.

AT a meeting held recently at University College, London, Mr. J. Ramsbottom, who occupied the Chair, gave an account of the life, personality, and activities of the late Mr. William Norwood Cheesman, J.P., F.L.S., who had died during his year of office as President of the Society.

Miss Lorrain Smith exhibited woollen and silk material that had been dyed with Lichens, and also specimens of the plants used. Under the name of "orchil lichens" are included all those that give a red colouration and are used in the preparation of litmus, though Lecanora tartarea, a crustaceous Lichen, is the one chiefly used.

Mr. S. Dickinson demonstrated a simple method of isolating and handling single spores and bacteria. The spores or bacteria are moved from place to place under continual observation in a local thickening of water film. This film is formed between a film agar and a fine glass rod, which can be moved in three dimensions by a special apparatus. The apparatus was demonstrated to the audience by means of an epidiascope.

Mr. Alex. Smith described Penicillium diseases of Gladiolus and Narcissus. Both diseases are rots which occur in storage. Whether the disease originates in storage or in the soil prior to harvesting is in both cases a matter for investigation. In Gladiolus the rot appears to spread from the remains of the previous year's corm, but it had been shown experimentally that the rot can be initiated by a cut infected with the proper species of Penicillium. So far this artificial infection has been found only in corms which were planted in soil or fibre, and it has not been possible to initiate the infection under storage conditions. The causal Penicillium is characterised by the production of pale pink sclerotia and abundant coremia in some media.

In the Narcissus disease the Pencillium appears to be fairly close to P. chrysogenum Naturally-infected bulbs are generally dried up and bear abundant spores between the dead scales. The disease appears to gain entrance *via* the dead tops of otherwise healthy scales. It fails to pass through epidermis and the whole bulb becomes affected from the base. Artificial infection has been secured by bruises in moist but not in dry, conditions.

Mr. W. Buddin and Miss E. M. Wakefield gave an account of the life-history of a fungus parasitic on Antirrhinum majus. Cercosporella Antirrhini, Wakef., a parasite of cultivated Antirrhinums which was first described in 1918, has been found to have another stage in its life-history, a pycnidial form belonging to the genus Hetercpatella. Pycnidia are produced in pure cultures on certain media, and have been found also on dead, overwintered stems of Antirrhinum. The connection with the parasitic Cercosporella has been proved by inoculations, No ascigerous stage has as yet been found, and possibly this does not occur, the winter pycnidia being sufficient to ensure the survival of the fungus from season to season. The disease is one of cool weather, the optimum temperature for growth of the fungus being about 18° C. Similar temperature relations are known for Heteropatella cercosperma (Rostr.) Lind, and recorded observations appear to indicate that the whole genus may be one specially adapted for cooler climates. The pycnidial stage of the Antirrhinum disease shows little morphological difference from other species of Heteropatella, but no doubt the characters of the ascophore (Heterosphaeria sp.) are necessary for the distinction of species in this group. One species is known to occur on the closely allied host plant, Linaria vulgaris, but the occurrence of a parasitic hyphomycetous stage appears to be a new development in the life history of the fungi.

Mr. J. Ramsbottom then gave the fourth part of "Fragmenta Mycologica" which included photographs of Onygena equina on sheep horns and on the horn stem of an old pipe; one of the somewhat previous tombstone of the American mycologist C. G. Lloyd; a silver milk jug with a fungus (? Lactarius) depicted on it, part of a tea service presented by the Woolhope Club to the late Worthington G. Smith; and an account of the strange behaviour of Enderlein in attempting to obtain priority in systematic work on Myxobacteriaceae to the disadvantage of Jahn, an authority on the group.

Mr. W. J. Dowson described a core-rot of Apples caused by Sclerotinia fructigena, an account of which appeared in *The Gardeners' Chronicle* of Dec. 19, 1925, p. 479. There were several interesting exhibits.

Obituary.

George William Cummins.—We regret to learn that Mr. G. W. Cummins passed away on New Year's day at the age of seventy years. For many years past he had resided at Croydon, and, although little known to horticulturists of the present generation he was famous among the older gardeners for the success with which he managed the late Mr. A. H. Smee's interesting garden on the banks of the Wandle—The Grange, Hackbridge. This position he occupied for sixteen years, and during that period he was a member of the Royal Horticultural Society's Fruit and Vegetable Committee. His successes as an exhibitor included no fewer than twenty-one R.H.S. medals, three of these being silver-gilt Knightian medals. He was an especially clever fruit grower, and received special awards for collections exhibited at the Apple and Pear Conference held in the old R.H.S. gardens at Chiswick, and at the Guildhall show, in 1890. The Surrey County Council recognised his services as an exhibitor and his work on behalf of domestic gardening. While at The Grange, and with the support of Mr. Smee, Mr. G. W. Cummins founded and was secretary of the Beddington, Carshalton, and Wallington Horticultural Society, which used to hold an extensive and instructive exhibition on each August Bank Holiday, when the late Mr. John Wright (*Journal of Horticulture*) and the late Mr. George Gordon (*Gardeners' Magazine*), acted as judges over a long period of years. After the death of his wife, Mr. Cummins went to Mablethorpe, Lincolnshire, and established a nursery and florists business. Later, he came south again, and was appointed gardener at the Croydon Borough's Isolation Hospital. In former years he was a frequent contributor to the horticultural press, and for half-a-century he was a careful and critical reader of *The Gardeners' Chronicle*, to which he sent notes of horticultural events that came under his notice. The remains were interred at Beddington Churchyard on January 5. Four sons and four daughters mourn the loss of a kindly father.

S. B. Dicks.—A valued friend of and contributor to *The Gardeners' Chronicle*, Mr. S. B. Dicks, passed away at his residence, West Norwood, on Monday, January 4, and we deeply regret the loss to his family, to horticulture and to ourselves. Mr. S. B. Dicks was a few months over eighty years of age; spent a very active life in the wholesale seed business, and for about sixty years was continuously in the service of Messrs. Cooper, Taber and Co., although he entered service with Messrs. Beck, Henderson and Child, a firm that, under various titles, gradually evolved into the present extensive business at Southwark Street, as Messrs. Cooper, Taber and Co. Our friend had a charming personality, was widely read and had a great fund of information concerning vegetables, their origin and uses, far beyond that possessed by members of his trade. He travelled widely in connection with the business of his firm, and at one period of his life made an annual visit to the seedsmen and seed-growing districts of the United States. He also visited regularly the seed-growing districts of France, Germany, Austria, Italy and Hungary, and even went further afield, to Arabia, Egypt and South Africa. A keen observer, and having a splendid memory, it was small wonder that he was consulted frequently upon those unusual but interesting and often very important matters that so frequently arise in any business. Although he paid special attention to vegetables and their seeds, he had a great love for florists' flowers, and for many years interested himself in Sweet Peas; indeed, he was the first to work out the history of this popular flower, and his comprehensive article which appeared in the *Florists' Exchange* in 1897 has been the foundation of all historical notes which have appeared in succeeding years. He took part in the celebration of the Bicentenary of the Introduction of the Sweet Pea into England in 1900, and contributed a historical paper to the conference on that occasion, as he also did to the National Sweet Pea Society's Conference in 1921. The keenness with which he followed up any point of interest was demonstrated in his endeavour to clear up the mystery by which the Sweet Pea came to be regarded as a native of Ceylon. He was one of the founders of the National Sweet Pea Society, its Chairman in 1903, and a member of its executive and floral committees for many years. This Society recognised his services by presenting him with the Henry Eckford Gold Medal in 1923. As a member of the Royal Horticultural Society's Fruit and Vegetable Committee, he rendered admirable service both at Vincent Square and at the Society's trials at Wisley; in recognition of his life-long service in his special branch of horticulture the Royal Horticultural Society recently awarded him the Victoria Medal of Honour in Horticulture, but, alas! he passed away without receiving the actual medal, which is usually presented at the Society's annual meeting in February. We shall miss his kindly greetings, his pleasant facetiousness, and his ready help, and our readers will regret that his series of informative articles on vegetables has come to an end. To the sons and daughter of our friend we offer deepest sympathy.

Rev. Prof. George Henslow.—The news of the death of this venerable botanist and distinguished horticulturist will be learned with the deepest regret by our readers. He died at Bournemouth on December 23rd, at his home at Danehurst, Branksome Wood Road, in his ninety-first year. He was born on March 23, 1835, and was the son of one of the most distinguished botanists this country has produced—the Rev. J. Stevens Henslow, rector of Hitcham, Suffolk, and Professor of Botany at Cambridge University. The late Professor George Henslow was lecturer in botany at St. Bartholomew's Medical School from 1886-1890, and he was also lecturer in botany at the Birkbeck Institute and Queen's College London. Gardeners will remember him chiefly for his association with the Royal Horticultural Society, to which he was honorary Professor of Botany for very many years. At one time he lectured frequently at the meetings of the R. H. S., taking for his subjects some of the plants in the hall, and giving a popular description of their structure, etc., in a most interesting manner. He was the author of many botanical works, including *The Origin of Floral Structures; The Origin of Plant Structures; Botany for Children; How to Study Wild Flowers; The Uses of British Plants; Plants of the Bible*, etc., etc. His chief work of interest to gardeners was *The Origin and History of Our Garden Vegetables and their Dietetic Values.* The deceased was one of the original sixty recipients of the Victoria Medal of Honour in Horticulture.

Leon Kerkvoorde.—We greatly regret to see in our contemporary, *La Tribune Horticole*, of Brussels, an account of the death of M. Leon Kerkvoorde, a well-known Belgian nurseryman He was ill for less than a month, and will be greatly missed, for he was everywhere beloved for his kindly helpfulness, his indefatigable industry, and his devotion to the interests of Belgian horticulture. All English visitors to the Ghent "Floralies" will remember his handsome, kindly features, and his absence from the fêtes of 1928 will cast a gloom of which all will be aware. He leaves a widow and several children, for whose sorrow we feel much sympathy.

John Leyden.—A noted Scotch horticulturist in the person of Mr. John Leyden has passed away at the advanced age of 83. In his earlier days he was the champion Peach grower in Scotland, and was a prominent prize winner at the more important shows in England and Scotland. He began his gardening career at Stravaar, with the then chamberlain of the Duke of Argyle, and was afterwards employed at Dalziel House, Motherwell, and at Mavisbank, Polton. Thereafter, for half-a-century, he had charge of the gardens at Whitehill House, Midlothian. Mr. Leyden retired a number of years ago.

ANSWERS TO CORRESPONDENTS.

Grubs in Seedling Boxes.—*E. J. P. M.* The grub is the larvae of a snouted beetle or weevil. It probably belongs to the genus Otiorhynchus, of which there are several species of economic importance. One or two species are common in greenhouses, and being night feeders, usually escape notice. Presumably this is what has happened. First a general effort should be made to reduce the number of adults. To do this they should be searched for at night by the aid of a lantern or torch, remembering always that they drop at the slightest movement. A flat tin, such as a housemaid's sweeping pan, covered with grease, forms a useful weapon to catch them after they are shaken from the plant, or a flat tin with a little paraffin at the bottom serves the same purpose. Secondly, some effort should be made to make the potting soil distasteful. To do this, one of the naphthaline compounds, such as vaporite, may be mixed with the soil, according to directions The soil should not be used for a week or so after mixing in the vaporite. The most important point, however, is to get rid of the adults.

Vine Border. *B. McP.* Much depends on the texture of the soil as to what should be added to it, indeed, the texture is, in some cases, more important than the chemical composition. A soil that is too light will not produce Grapes of good quality. It has sometimes been found advantageous to mix powdered clay with very light soil. On the contrary, a soil which binds is not suitable, for it will not be sufficiently aërated. Again, potash is a most important item, which in some districts is very deficient. A small excess of potash in the border will do no harm, but an excess of nitrogenous matter will do so. Therefore, if there is a large amount of vegetable matter in the soil, it is not well to add anything that will enrich the ground with nitrogen for the first year or two. In ordinary cases, half-a-peck of lime rubble, such as mortar from an old building, but less than this if the soil is light, a six-inch potful of fine bone-meal (not chemically treated) and four ounces of sulphate of potash should be added to each cubic yard of soil. As the last-named is quickly used up in some soils it should be replenished every year on the surface, at the rate of two pounds to the perch. Charcoal is not a plant food, but it helps to keep the soil open and sweet. It is well to place the bonemeal, potash and nitrogen in the upper half of the border. Three feet is more than enough for depth of soil; you will therefore have ample room for drainage materials. It will be advisable to plant the vine of Madresfield Court near the door, as it requires, at certain times, more ventilation than White Muscats.

Communications Received.—A. J. M.—B. W. C.—C. I.—W.G .—F. J. C.—R. B.—A. P.—J. N. M.—F. H.—G. C. J.—J. F. H.—R. G.—H. M.—T. W. F. T. B. O.

GARDENING APPOINTMENT.

Mr. R. Griffin, late of Abergavenny, South Wales, as Gardener to D. A. Seligman, Esq., East Burnham Park, Farnham Royal, near Slough.

MARKETS.

COVENT GARDEN, Tuesday, January 5th, 1926.

Plants in Pots, etc.; Average Wholesale Prices.

(All 48's except where otherwise stated).

	s. d. s. d.
Adiantum cuneatum per doz.	10 0-12 0
—elegans	10 0-12 0
Aralia Sieboldii	9 0-10 0
Araucarias, per doz.	30 0-42 0
Asparagus plumosus	12 0-18 0
—Sprengeri	12 0-18 0
Aspidistra, green	36 0-60 0
Asplenium, per doz.	12 0-18 0
—32's	24 0-30 0
—nidus	12 0-15 0
Azaleas, '48's, each	4 0—6 0
Cacti, per tray	
—12's, 15's	5 0- 7 0
Chrysanthemums, pot grown, in variety, 48's, per doz.	15 0-24 0
Cinerarias, 48's, per doz.	18 0-21 9
Crotons, per doz.	30 0-45 0
Cyclamens, 48's in variety, per doz.	24 0-30 0
Cyrtomium	10 0-25 0
Erica hyemalis	
—48's, per doz.	24 0-30 0
—60's, per doz.	15 0-18 0
—gracilis, 48's, per doz.	24 0-30 0
—nivalis, 48's, per doz.	24 0-36 0
above varieties in 60's, per doz.	12 0-15 0
—in Thumbs, per doz.	9 0-10 0
Genistas, 48's, per doz.	24 0-27 0
Marguerites, 48's per doz.	18 0-21 0
Nephrolepis in variety	12 0-18 0
—32's	24 0-36 0
Palms, Kentia	30 0-48 0
—60's	15 0-18 0
Pteris, in variety	10 0-15 0
—large, 60's	5 0- 6 0
—small	4 0- 5 0
—72's per tray of 15's	2 6- 3 0
Roman Hyacinth, on bulbs, per doz.	4 6- 5 0

Cut Flowers, etc.: Average Wholesale Prices.

	s. d. s. d.
Adiantum decorum, doz. bun.	18 0-21 0
cuneatum, per —doz. bun.	12 0-15 0
Arums (Richardias) per doz.	8 0-10 0
Asparagus plumosus, per bun., long trails, 6's,	2 0- 3 0
med. sprays	1 6- 2 6
short	0 9- 1 3
—Sprengeri, bun long sprays	1 6- 2 0
med. ,,	1 0- 1 6
short ,,	0 4- 1 0
Azalea, white, per doz. bun.	9 0—10 0
Bouvardia, white, per doz. bun.	15 0-18 0
Camellias, white, per box, 12's	2 6- 3 6
Carnations, per doz. blooms	4 0- 5 0
Chrysanthemums white, large blooms, per doz.	7 0- 9 0
—yellow, large blooms, per doz.	5 6- 6 0
pink, large blooms, per doz.	7 0- 9 0
—bronze, large blooms, per doz.	7 0—9 0
above colours—	
—medium blooms, per doz.	5 0--6 0
—white spray per doz. bun.	30 0-36 0
—yellow, spray per doz. bun.	36 0-42 0
—pink, spray, per doz. bun.	27 0-36 0
—bronze, spray, per doz. bun.	30 0-36 0
Croton leaves per doz.	1 9- 2 6
Daffodils, single, per doz. bun.	21 0-24 0
Fern, French, per doz. bun.	10 0-12 0
Freesia, white, per doz. bun.	3 6—4 6
French Flowers—	
—Acacia (Mimosa) per doz. bun.	15 0-18 0
—Anemone, De Caen, per doz. bun.	12 0-15 0
—Eucalyptus per pad	4 0--5 0
—Marguerites, yellow, per doz. bun.	4 0--4 6
French Flowers—	
—Narcissus, Paper White, per doz. bun.	5 0—6 0
—Narcissus Soliel d'Or, per doz. bun.	12 0-15 0
—Parma Violets, per bun.	6 0—7 0
—Ranunculus, scarlet, per doz. bun.	6 0—7 0
—carmine, per doz. bun.	5 0—6 0
—orange, per doz. bun.	24 0-30 0
Heather, white, per doz. bun.	10 0-12 0
pink, per doz. bun.	9 0-12 0
Honesty, per doz. bun.	18 0-30 0
Hyacinths, Roman, per doz. bun., 12's	21 0-24 0
Iris tingitana, per doz. blooms	4 0—5 0
Lilac, white per doz. sprays	6 0--7 0
Lilium longiflorum long, per doz.	4 6--5 0
—speciosum album, long, per doz.	4 0--5 0
—short, per doz.	3 6--4 6
—speciosum rubrum, long, per doz. blooms	4 6--6 0
—short, doz. blooms	3 0--3 6
Lily-of-the-Valley, per doz. bun.	18 0-24 0
Narcissus Grand Primo, per doz. bun.	15 0-18 0
Orchids, per doz.	
—Cattleyas	24 0-30 0
—Cypripediums	5 0--7 0
Poinsettia, per doz. blooms	12 0-24 0
Prunus triloba, per doz. bun.	— 2 6
Roses, per doz. blooms, Richmond	12 0-15 0
—Liberty	12 0-15 0
—Madame Butterfly	15 0-18 0
—Madame Abel Chatenay	10 0-12 0
Smilax, per doz. trails	2 6--3 0
Tulip, single—	
—white	18 0-24 0
—yellow	24 0-30 0
—scarlet	24 0-36 0
—pink	24 0-30 0
—terra cotta	24 0-30 0
—Copland, per doz. bun.	48 0-60 0
Violets	4 0--6 0

REMARKS.—Increased supplies are arriving from home-growers, the Channel Islands and the South of France, and prices throughout are on the down grade. Amongst Chrysanthemums, coloured varieties show signs of finishing, but the quantities of white blooms and bunched spray white appear sufficient for the present demand. Daffodil Golden Spur and all Tulips are much improved in quality; the latter include La Reine, Thos. Moore, Yellow Prince, Brilliant, W. Copland, Mon. Tresor and Gris de Lin. Roses are scarce; Madame Butterfly, Columbia, Madame A. Chatenay and a few blooms of Richmond are the best sorts available. There will be nothing reliable until the new crop is ready in about a fortnight's time. Large consignments of white Lilac and Tulips have been arriving from Holland during the past week, also a few bunches of Prunus triloba. Supplies are increasing almost daily from the Channel Islands. These consist of Freesias, Anemones, Richardias (Arums), Daffodils, Narcissi Soliel d'Or, Grand Primo, and Paper White, and Smilax. Supplies from France are much improved in quality, and prices are lower now than for some weeks past; this should increase the demand for these blooms. Small consignments of White Stocks are the newest arrival from this quarter.

Vegetables: Average Wholesale Prices.

	s. d. s. d.
Artichokes, green per doz.	2 0--3 0
Asparagus—	
—English	3 0--6 0
—Paris Green	8 6--9 0
—Sprue	1 3--1 6
Beans—	
—Madeira, per basket	2 0--6 0
—Finest (French)	4 0--6 0
—Best	2 6--3 0
Beets, per cwt.	6 0--8 0
Cabbage, per tally	6 0-10 0
Celery, per doz. tans	24 0-36 0
Cauliflowers—	
—St. Malo, per crate	4 0--7 0
Carrots, per bag	6 0—8 6
Chicory, Belgian, per lb	0 6--0 8
Cucumbers, per doz.	16 0-36 0
Endive, per doz.	2 0—3 0
Horseradish, per bundle	1 3--2 0
Lettuce, round, per crate	4 0--6 0
—French Cos, per doz.	6 0--7 0
Mint, forced	4 0--6 0
Mushrooms,	
—French	1 0--2 0
—cups	2 6--3 0
—Broilers	1 0--2 0
Onions—	
—Dutch	8 0--8 6
—English, per cwt.	8 0--9 0
—Valencia	8 0-10 0
Parsnips, per cwt.	6 0--8 0
Potatos—	
—King Edward,' per cwt.	6 6--8 0
—others	4 6--6 0
New Potatos—	
—Azores, per case	20 0-30 0
—Canary Island	10 0-16 0
—Guernsey	0 6--1 0
Rhubarb, forced per doz. bundles	2 6--3 0
Seakale, per punnet	3 0--3 6
Sprouts, per ½ bag	4 0--6 0
Savoys, per doz.	1 6--2 6
Tomatos, Canary Islands	5 0-16 0
Turnips, per cwt.	5 0--6 0

Fruit: Wholesale Average Prices.

	s. d. s. d.
Apples, English, per ½-sieve—	
—Cox's, special	12 0-15 0
—best	6 0-10 0
—others	3 0--4 0
—Allington Pippin	2 0--3 0
Apples, Cooking—	
—Bramley's Seedling	4 0 7 0
—Lane's Prince Albert	4 0--6 0
—Blenheim Pippin	4 0--8 0
Newton Wonder per bushel	4 0--7 0
Apples, American	
—Jonathan	12 0-15 0
—Californian	12 0-15 0
—Oregon Newtown	16 0-18 0
—York Imperial barrels	30 0-36 0
—Spitzenberg	12 0-16 0
Apples Nova Scotia—	
—King's	18 0-23 0
—Blenheim, barrels	16 0-20 0
—Baldwin	14 0-18 0
Bananas	15 0-25 0
Brazils, per cwt.	90 0-100 0
Chestnuts, Italian, per bag	18 0-22 0
—Spanish	14 0-15 0
Cobnuts, per lb	1 2--1 3
Dates (Tunis), per doz. cartons	4 0--5 0
Grapes, per lb—	
—Alicante	1 4--2 6
—Guernsey	0 10-1 6
—Colmar	1 6--2 6
—Muscat	5 0-12 0
—Almerian, per barrel	15 0-25 0
Belgian—	
—Muscats	5 0--6 0
—Black	1 6--2 0
Grape Fruit,	
—Jamaica	16 0-20 0
—Isle of Pines	21 0-22 6
—Florida	27 6-32 6
Lemons, Messina, per box	10 0-30 0
—Malaga	18 0-22 0
Oranges—	
—Denia	12 0-20 0
—Jamaica	12 0-16 0
—Murcia	12 0-20 0
—Malaga	18 0-20 0
—Jaffa	13 0-17 6
—Sevilles	12 6-15 0
Pines	3 0--5 6
Pears, Californian—	
—D'Anjou	18 0-20 0
—Nells	22 0-24 0
—Comice, per ½ case	15 0-20 0
South African fruits—	
—Peaches, per box	4 0—8 0
—Apricots, per box	3 0—6 0
—Plums, Santa Rosa	6 0-10 0
—Others	3 0—6 0

REMARKS.—Except for one or two special lines, business has been on the slow side during the week, but some improvement is expected in the near future. Peaches, Apricots and Plums are the principal fruits of the earliest arrivals from South Africa, but there is not a brisk demand for them at the moment. Stocks of Apples from the United States and Canada are ample for the trade that is ruling just now, and quotations are a shade easier. Oranges are plentiful and meeting something slower than a moderate enquiry. The competition of other fruits has probably been the reason for slightly lower prices at which Bananas are now selling. Fair quantities of English Apples are being sent to market, and in some instances the fruits are well packed and in excellent condition. Bramley's Seedling, Lane's Prince Albert and Newton Wonder of that description are selling fairly well. While Cox's Orange Pippin, generally, is past its best, some fine samples of this variety are still available and selling at satisfactory prices to the growers. Trade in choice vegetables is only fair, and such produce as forced Potatos, Beans, Peas and Asparagus might sell with more freedom, even if their prices are somewhat exclusive. Madeira Beans have arrived this week in better condition, and have realised higher prices. Mushrooms have shown some fluctuation in value, but at the time of writing their prices seem more stable, fewer having been shipped from France. Tomatos from the Canary Islands have, on the whole, been somewhat unsatisfactory, a great proportion having come to hand very much out of condition and of an inferior quality. A few top-grade marks are, however, selling well. A sprinkling of Cucumbers is still arriving, but their prices are rather high. Cauliflowers, mainly from Northern France, after a period of good prices, are now coming in very poor condition, due, no doubt, to the recent severe weather, and they are difficult to sell even at prices which barely cover cost of freightage. Salads are selling very well and will continue to be in demand. Green vegetables are fairly plentiful and are making good returns. Trade in new Potatos from the Azores and Canary Islands is anything but brisk, and there is room for much improvement. Old Potatos are a steady trade without being unduly brisk, and with little or no variation in prices.

TRADE NOTE.

OUR correspondent, who furnishes us with the weekly report of the Glasgow fruit, flower and vegetable trade, sends the following note on the market-growing industry in the Glasgow and West of Scotland districts:—

"While 1925 has been a year of widely fluctuating prices in the marker-grower's business, I think when the profit and loss account is made up for the twelve months it will be found in most cases that the average has not been unsatisfactory. In my endeavour to obtain an expression of views on the subject, I found that differences of opinion prevailed, and there was absence of unanimity regarding any particular product. One nurseryman confessed that it had been one of the most difficult years in his experience; another believed in taking a long view of things, and admitted that when the good weeks were put against the lean periods he saw no reason to complain, while an Ayrshire optimist was quite well pleased with prices and added, 'We have had quite a good year.' One grower, of a judicial turn of mind, argued on the basis of careful observation, pointing out that the law of compensation usually worked out equitably, and that what was lost in bulbs was more than made up by Tomatos and late Chrysanthemums. One may reasonably conclude that the Scotch nursery trade is in a healthy condition, and that a further expansion of the glass area will be witnessed in the near future."

THE WEATHER, DECEMBER, 1925.

THE mean temperature in the screen for the month was 35.3°, or 2° below normal. The highest maximum readings of 50° were noted on the 7th, 8th and 29th, while the lowest minimum of 20° occurred on the 19th. This gives an absolute range of 30°. The lowest maximum of 29° and the highest minimum of 40° were recorded on the 25th and 17th respectively. In the open the grass minimum thermometer registered frost on twenty-one days, and the lowest readings of 13° were taken on the 19th and 25th. The temperature of the soil at one foot deep, at 34°, was practically stationary throughout the month. Precipitation totalled 2.29 inches, or slightly under the average. This rainfall was distributed over eighteen days, and the greatest fall of .80 of an inch occurred on the 17th. Snow fell on seven days, and snow lying was recorded on fourteen days. Bright sunshine is not expected to reach a high total in December. The 40½ hours recorded is just about normal, and gives a daily average of 1.3 hour with a percentage of 19. The brightest day was the 16th, which contributed 5.1 hours sunshine. Barometric pressure was highest on the 4th, viz., 1.635 mbs. (30,564 inches), and lowest on the 29th, viz., 973.2 mbs. (28,741 inches). The last ten days of the month were a period of low pressure. Winds, which were mainly south and westerly, veering occasionally to north-west, were never of great force. *W. MacLelland, The Meteorological Station of St. Andrew's Provincial Committee at the Training College Gardens, Mayfield, Dundee.*

CATALOGUES RECEIVED.

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DOBBIE AND CO., LTD., Edinburgh.
W. E. T. INGWERSEN, Birch Farm Hardy Plant Nursery, Sharpthorne, Sussex.
ALFRED DAWKINS, 408, King's Road, Chelsea.
DICKSON, BROWN AND TAIT, Manchester.
SALE AND SON (WOKINGHAM), LTD., Wokingham.
J. R. PEARSON AND SONS, LTD., Lowdham, Notts.
J. C. WHEELER AND SON, LTD., Gloucester.
FISHER, SON AND SIBRAY, LTD., Handsworth, Sheffield.
BARR AND SONS, 11, 12 and 13, King Street, Covent Garden, W.C.
COOPER, TABER AND CO., LTD., 90 and 92, Southwark Street, S.E. (Wholesale.).
W. SMITH AND SON, LTD., 18, Market Street, Aberdeen.
MCHATTIE AND CO., Chester.
WATKINS AND SIMPSON, LTD., 27, Drury Lane, Covent Garden, W.C. (Wholesale).
LITTLE AND BALLANTYNE, LTD., Carlisle.
AUSTIN AND MCASLAN, Glasgow.
ROBERT VEITCH AND SON, 54, High Street, Exeter.
WM. FELL AND CO. (HEXHAM), LTD., Hexham.
W. DRUMMOND AND SON, LTD., 57, Dawson Street, Dublin.

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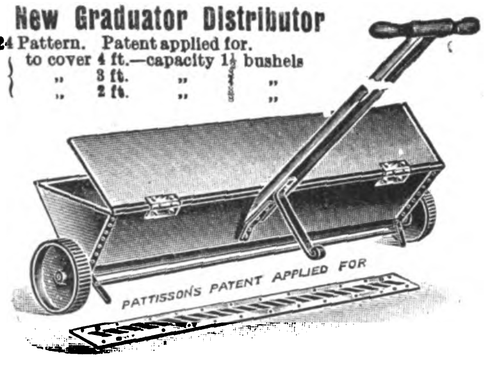

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25/- per cwt. £24 per ton. Carriage Paid.
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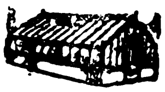

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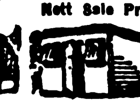

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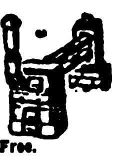

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IT IS THE STANDARD FOOD FOR PLANTS.

THE Gardeners' Chronicle

No. 2038.—SATURDAY, JANUARY 16, 1926.

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SUPPLEMENTARY PLATE.

Pitcairnia corallina.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 38.7°

ACTUAL TEMPERATURE—
The Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, January 13, 10 a.m. Bar. 30.3 Temp. 35° Weather, Cold and windy.

The Germination of Seeds.

IT is interesting to find that botanists are, as shown by their published work, taking an increasing interest in the physiology of germination. Every gardener knows what vagaries seeds exhibit in their germination and attention has often been drawn in these pages to some of these vagaries. But it will not be until research has busied itself with the problems much more than it has done at present, that we may expect that full enlightenment without which scientific discovery can be applied only tentatively to practical garden problems. Of recent investigations into the process of germination and the conditions which control it, the most interesting—at all events from the scientific standpoint—is the influence exerted by light on germination. Experiment shows that seeds may be separated into two or more classes according to their response to light. There are certain kinds of seeds, species of Tobacco (Nicotiana), Salicaria, Veronica and others, on the germination of which light exerts a remarkably accelerating action. In the case of seeds belonging to this category even a very brief exposure to light may result in a large increase in the percentage of germination. There are, however, other seeds which behave contrariwise, exposure to light producing in them an inhibition, that is, a checking of germination. Furthermore, among seeds belonging to the light-germinating class a number of facts of significance have been discovered. In the first place, it has been shown that acceleration of germination may be induced by an almost incredibly short exposure to light. In the second place, it appears that for a given increase in germination to be obtained what matters is the quantity of light and not the intensity. Light of low intensity shining on the seeds for a longer time produces the same effect as light of higher intensity applied for a correspondingly shorter time. Hence, if the light be of a very high intensity, the time of exposure necessary to raise the percentage of germination, as compared with that which occurs in unlighted seeds, may be a matter only of a second or so. These facts are interpreted to mean that light exercises a photochemical action on some part or other of light-sensitive seeds and that as a result of this action some substance—of as yet unknown nature—is produced which acts as a stimulator of the germination process. In support of this conclusion it has been shown that seeds which have been stimulated by light may show the enhanced percentage of germination when, subsequently, they are sown in darkness, and it is also claimed that the light-stimulatory substance may be washed away from the seeds so that they, when set to germinate, no longer show the higher percentage of germination. In the third place, experiment also indicates that whereas with light-sensitive seeds, if the quantity of light as measured by the product of intensity and time passes a certain point, then it acts not as a stimulator, but as a check. For example, seeds of Mercurialis annua are capricious in their germination, germinating in some conditions at the rate of about 10% at harvesting, and gradually germinating more freely as the years go on, 14% in the first to the third year, 30% in the fourth, and falling to 16% in seven years. Although the seeds germinate better in darkness than in light it has been shown by Mr. P. Gillot* that a relatively brief exposure to light increases the percentage of germination (from 48% to 60%), whereas a longer period of exposure depresses it to 28%. Another fact of interest is that the speeding-up effect which light exerts on some seeds may be produced also by certain chemicals, dilute hydrochloric acid for example. It would seem from these recently discovered facts that seeds contain light-sensitive substances which break down very readily under the influence of light, with the formation of substances, some of which activate and some of which may retard germination. Pending further discoveries, however, gardeners must continue to try all kinds of methods to induce refractory seed to germinate. Of these methods, there can be no doubt but that stratification is the safest and best. By placing the seeds in layers between thin layers of moist, fine soil in pans and sinking the pans in ashes, the germination of even the most refractory seeds is quickened. Mr. Gillot, whose work has been referred to already, found that by stratification he could raise the germination of seeds of Mercurialis annua from some 14 to 90 or more per cent. It is also worthy of note that for purposes of stratification soil seems to give better results than sand, though why this should be the case baffles understanding no less than the many other peculiarities of germination — Solomon might well have added to his catalogue of mysteries—"the way of a ship in the sea," etc., the way of the seed in the ground. Finally, although it has not so far as we know yet been made the subject of exact experiment, the gradual failure of aging seed to germinate at all will probably be found to be due to the accumulation in the seed of specific chemical substances which act as slow poisons. Perhaps, indeed, the very substances which, when found in small quantity, accelerate germination, will be found, when produced in larger quantity, to slow down and finally to arrest the life process of the seed.

National Rose Society.—The forty-ninth annual general meeting of this Society will be held at Caxton Hall, Victoria Street, Westminster, on Tuesday, January 19, at 2.30 p.m. Members of the Society are cordially invited to remain for tea and light refreshments after the meeting, which is expected to be over at 3.45.

Plans of Field Drains.—Where new gardens are being made or areas of farm land are being added to a garden, a plan showing the position of land drains would prove useful, but such plans are rarely available. No doubt the general lack of such information and the increasing need of such knowledge led the Earl of Chichester to propose the following resolution at the December meeting of the Council of Agriculture:—"That the Ministry of Agriculture and Fisheries be asked to introduce legislation making it compulsory in all future cases where agricultural land is drained by means of underground pipes, that a plan of the drains be attached to the deeds of the property, and also to any agreement for the letting of such land."

The Kew Hand-List of Coniferae.—The latest of the new series of *Hand-Lists* issued from the Royal Botanic Gardens, Kew, is the one dealing with Coniferae, Cycadaceae and Gnetaceae* cultivated at Kew. This is the third edition of such a *Hand-List*. In the first edition 227 species, with 340 varieties, belonging to thirty-seven genera, were listed. The second edition, which was revised by the late Dr. Masters, enumerated 246 species, and 451 varieties, whereas in the present issue (third edition) the number of Coniferous plants enumerated includes 288 species and 398 varieties, or forty-two more species and fifty-three fewer varieties than were included in the 1903 edition. In the new edition, however, there is published for the first time a list of the Cycads cultivated at Kew, which form what is probably the finest collection of these plants in existence. The third edition also differs from its predecessors by the inclusion of a section which deals with the economic properties of Gymnosperms. The genera of living plants are arranged alphabetically in their families, instead of in the botanical sequence followed in earlier editions. In the second section, however, the botanical sequence is maintained. Reference is made in the preface to the difficulty of cultivating Conifers successfully at Kew owing to adverse atmospheric conditions, and also to the establishment of a national collection of Conifers at Bedgebury, near Tunbridge Wells, under the control of Kew, in co-operation with the Forestry Commission.

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* *Bulletin de la Société Botanique de France* Vol. LXXII., 1925, p. 149.

* *Hand-list of Coniferae, Cycadaceae and Gnetaceae grown in the Royal Botanic Gardens, Kew.* Third Edition. Price 1/6 net from the Royal Botanic Gardens, Kew.

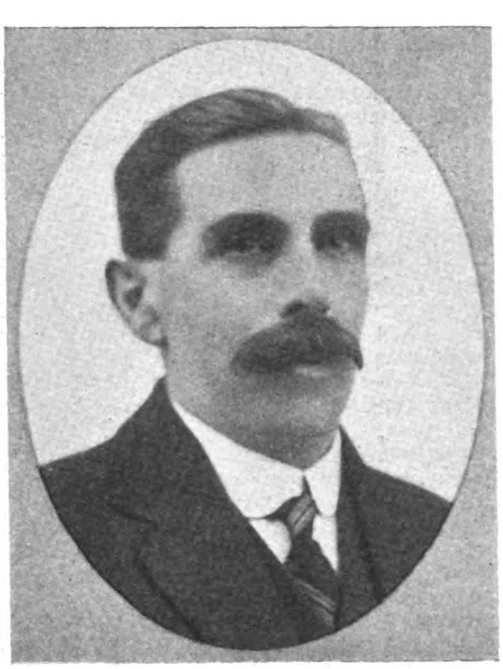
Two Interesting Calendars.—A useful calendar has been issued by the City of Birmingham Estates Department to its tenants. There are fifteen sheets, with a printing surface of seven inches by nine-and-a-half inches. An illustration of horticultural interest appears on each of the twelve calendar sheets, and those of Chrysanthemums, Fruit Garden at Hall Green, Roses, Tenant's Garden at Erdington (2), and Prize-winning Exhibits of Apples, are reproductions in colour. The gardening reminders are necessarily brief, but they are timely and useful, as also are the household hints, one of which for January, is "Don't bang your door if you do not think it closes properly—try and find the reason." The last three sheets contain particulars of a "Cropping Scheme" for the vegetable garden; and fruit-pruning charts, the latter containing no fewer than sixteen diagrams to assist the text. The second calendar is from the Yokohama Nursery Co.; it is a daintily pretty work, enclosed in a neat cardboard wallet; the calendar for each month is printed in colours on a thin, tough card slip, but all the slips are tied together loosely, with a loop above the one for January; when this loop is held up or slipped over a nail, the calendar for the year falls into proper order and becomes an attractive picture of a Pagoda with a suitable background.

Special Presentation to Mr. B. H. Maclaren.—It is with great pleasure we learn that the Brighton Corporation has presented its Parks Superintendent, Mr. B. H. Maclaren, with an honorarium of £200 "for services in connection with special work carried out by you in the past outside your ordinary duties."

Concession to Scotch Potato Growers.—The Board of Agriculture for Scotland has issued a general licence authorising occupiers of holdings not exceeding half-an-acre in extent, and of private gardens, to plant during the season of 1926 Potatos of certain first-early varieties which are not immune from Wart Disease, on condition that the resultant crops will be lifted not later than August 15, except in the counties of Aberdeen, Banff, Caithness, Inverness, Kincardine, Moray, Nairn, Orkney, Ross and Cromarty, Shetland and Sutherland, where the crops shall be lifted not later than August 31.

Garden Pictures at the Royal Academy.—John Sargent is regarded as a portrait painter, and the loan exhibition of his works which opened at the Royal Academy on Thursday, the 14th inst., consists in the main, of portraits. Nevertheless, there are a number of landscapes, and some—a few—of garden interest. As a matter of fact, one of his best known pictures, the favourite "Carnation, Lily, Lily, Rose" is a garden scene, depicting two children standing knee-deep in flowers, lighting Chinese lanterns, tall Madonna Lilies towering over their heads, and, in the foreground, a tangle of different-coloured Carnations. Number 9, The Villa Torlonia, shows a formal Italian garden with a fountain enclosed by a stone balustrade, the dense foliage of luxuriant trees forming a shady background. In 111, we find another Italian garden, that of the Villa Collodi, near Lucca; the central portion of the picture is occupied by a stature of Daphne. The Gates of a Château at Ransart (No. 124) is a study in battered masonry and broken, creaking gates, with a riot of foliage and flowers, against a sky of summer blue. In "Pines" (150), the chief feature is the brilliant light, against which the dark foliage of the trees looks almost blue. No. 287 is an oil painting of an old and broken rush chair, on which is a small glass vase with three Roses in it; the group is set in a deep green meadow. A Garden in Corfu (No. 286), shows a shallow, winding, stone stairway, stone parapetted, against a background of thick, shady trees, through and beyond which the deep blue of the sea is visible. No. 507 is a water colour, of which the subject is the Garden of La Granja, Madrid; the picture shows a shady, stone-edged pool, the water a soft green from the reflection of the trees which shade it; a few feet from the rim of the pool, across the stone path, are four stone figures. The whole effect of the picture is one of dark, quiet calm. Mr. F. D. Millet's house and garden in 1886 forms the subject of No. 557. A wide, gravel path is shown, with deep green grass on each side, in which grow Rose trees and tall Lilies. The house in the background is almost obscured by trees in their full summer foliage.

Mr. William R. Catt.—During 1925, Mr. W. R. Catt won *The Gardeners' Chronicle* Silver-gilt Medal offered at Shrewsbury Show for the best amateur's exhibit of hardy fruit, and, as in the previous year, was a successful competitor in other classes. He commenced his gardening career at Sittingbourne, with Mr. A. J. Thomas, then a frequent and successful exhibitor of hardy fruits at the leading English exhibitions. Here he received a training that laid the foundation of his success. After serving as journeyman in several southern gardens, including those at Caversham Park, Reading, and Theobald's Park, Hertfordshire, he was engaged as foreman at Lilleshall Hall, Newport, then the residence of the Duke of Sutherland, and a well-known centre of horticultural activity. Mr. Catt remained at Lilleshall for two-and-a-half years, and was then appointed gardener to A. H. Herbert Percy, Esq., at Hodnet Hall, Market Drayton, a position he filled most ably for twenty-one years, becoming a successful exhibitor at Shrewsbury and other west country shows. In September, 1925, Mr. Catt left Hodnet Hall to take up the position he now occupies as gardener to H. J. Jones, Esq., Buntingsdale, Market Drayton, Shropshire.


MR. W. R. CATT.

Law-breaking benefits a Botanic Garden.—The United States District Court has directed the Marshall to deliver to the United States Botanic Garden vessels used in the conveyance of illicit liquor and seized by prohibition officers, for use as receptacles for plants and shrubs. A good supply of barrels and beer kegs will be available from this source for the botanic garden. Our own botanic gardens at Kew and elsewhere have benefited by the contravention of the Customs law in this country, for much of the Tobacco, including cigars, and cigarettes, confiscated by the Customs, is placed at the disposal of the botanic gardens for purposes of fumigating the plant houses.

Prices of Insecticides used by Fruit Growers.—The Ministry of Agriculture has obtained information as to the prices ruling in North Kent, South Worcestershire and the Isle of Ely for the principal insecticides used by fruit growers. Nicotine of 96 per cent. purity is being sold at 14/- to 15/- per pound, and up to 16/6 per pound for small quantities, while grades of 40-45 per cent. purity are quoted in the Wisbech district at 6/- to 6/3 per pound, according to quantity. Spraying soap is purchasable at 32/6 to 37/- per cwt. in the different districts. Copper sulphate is quoted at 32/6 per cwt. in the Canterbury district, 31/- to 32/6 per 100 pounds bag at Wisbech, and 45/- per cwt. at Evesham. The price of lime sulphur (1.3 specific gravity) in South Worcestershire is 1/6 per gallon, in North Kent, 1/3 per gallon, and in the Isle of Ely, 1/6 to 1/9 per gallon. Lead arsenate is quoted at 9d. to 1/- per pound, according to make, at Wisbech, 10d. to 10½d. for single strength, and 1/8 for super quality in the Canterbury district, and 1/2 for 20 per cent., sold in cwts., in the Evesham district. Generally, prices are very similar to those ruling a year ago, but on the whole they are a trifle cheaper.

Success of an English Gardener in U.S.A.—Mr. W. N. Craig, nurseryman of Weymouth, Massachusetts, U.S.A., has been elected president of the Boston Gardeners' and Florists' Club. Mr. Craig's father was gardener at Levens Hall, Westmoreland, and before settling in America, Mr. W. N. Craig was engaged for four years at Lambton Castle Gardens, Durham, and subsequently he was employed in the nursery and seed business that his father had established at Kendal, Westmoreland. Mr. Craig is a valued correspondent to *The Gardeners' Chronicle*, and his notes on horticulture in America are always of interest. He is a life member of the Massachusetts Horticultural Society, and is connected with several other important associations, including the U.S.A. Sweet Pea, Rose and Carnation societies, the New England Gladiolus Society, and the Horticultural Club of Boston; for twenty years he officiated as secretary of the Boston Gardeners' and Florists' Club, an office which he has recently resigned, whereupon he was unanimously elected President of the Club.

Legacy to a Gardener.—The late Mr. Thomas Moss Cheesman of Elmore, Chipstead, Surrey, who died on October 29 last, bequeathed the sum of £250 to his gardener, Mr. Wood.

M. Correvon's Lectures in the United States.—M. H. Correvon of Floraire, Geneva, is proceeding to the United States where he has arranged to deliver between fifty and sixty lectures on alpine plants, rock gardening and other horticultural subjects at various places from Boston to San Francisco. He expects to be absent for about three months.

Poisonous Deposits on Apples.—As will be seen on reference to our market report, there has been a very considerable falling off in the sale of imported Apples as a result of the arsenic scare, caused by the deposition of arsenic (from arsenical washes) on imported Apples. In view of the cases of poisoning which have occurred, the County Council of Middlesex has issued a leaflet to all distributors of fruit in the county, stating that the public should be warned not to eat the skins of contaminated Apples, especially Newtown Pippin and "Newtown Oregons." The seller is recommended to brush such Apples with a wet brush and thoroughly wipe the whole surface, especially those fruits upon which any greyish-white powdery deposit in the two depressions around the stalk and calyx is visible to the naked eye. The safest plan for the consumer appears to be that of removing the skin entirely by paring.

Imperial College of Tropical Agriculture.—At the meeting of the Royal Society of Arts on the 9th ult., Professor H. Martin Leake, Sc.D., Director of the College, gave some interesting particulars of this institution in a paper which was read by Dr. A. W. Hill. It was started in 1922 as the West Indian Agricultural College, and owes its existence in great measure to Sir Francis Watts, the first Principal, who, as a Commissioner of Agriculture for the West

Indies, inspired the support of several gentleman. In 1923, at the instigation of the Rhodes trustees who contributed liberally to the funds of the college, the title was changed to that of the Imperial College of Tropical Agriculture. The training is adapted to those who desire to take up farming under tropical conditions, to those engaged in the administrative side of the Colonial Agricultural Services, and to those who desire to specialise in research work. Professor Leake stated that research is an essential feature of the syllabus, and a research station for Cotton growing has been established in proximity to the college. The course is open to any student who holds the matriculation qualification of any University in the Empire. In 1924-5, thirty-three students were in residence. In his concluding remarks, Professor Watts stated that he visualised the college as one of the recruiting grounds for the Colonial Administrative Services.

British Florists' Federation.—The ninth annual general meeting of members of the British Florists' Federation will be held at the Holborn Restaurant, London, on Friday, January 29, at 3.30 p.m. The general business will be followed by a discussion on "Imports of Flowers and the Effect of German Duties," to be opened by Mr. T. Windle. The seventh annual dinner will be held on the same day at the Holborn Restaurant, at 6.15 p.m. Tickets, 10/6 each.

Honour for Mr. W. B. Haines.—The Senate of London University has conferred the doctorate of Science in physics on Mr. W. B. Haines, of University College and Rothamsted Experimental Station.

The U.S.A. Embargo on Bulbs.—Notwithstanding the efforts that have been made by many horticulturists in America to persuade the U.S.A. authorities to remove the embargo on the importation of bulbs, Secretary Jardine has decided that the restrictions, as already ordered, should take effect as from January 1, 1926. These restrictions were authorised three years ago, and resulted in much opposition from various sources. As a result of the protest Secretary Jardine called a conference in Washington on November 16 and 17, 1925, when strong reasons for counteracting the order were forthcoming. Mr. Jardine states that he has given full consideration to the objections against the measure, but considers that there is ample evidence as to the danger of pests entering the country on the bulbs, and that it "undoubtedly justifies fully" the applications of the restriction. Limited quantities of bulbs will be admitted under special permit, for use as propagating stock, as novelties unavailable in the United States, or as material for investigational work. The following bulbs will, however, still be allowed to be imported (pending further determination of the possible risk involved in their importation) in unlimited number, and under merely a general permit according to Regulation 3 of Quarantine 37:—Chionodoxa, Galanthus, Scilla, Muscari, Fritillaria imperialis, F. Meleagris, Ixia and Eranthis.

National Chrysanthemum Society.—The annual meeting of members of the National Chrysanthemum Society to consider the annual report and accounts and to elect officers and the committee for 1926, will be held at Essex Hall (small hall), Essex Street, Strand, on Monday, February 1, at 6 p.m.

Appointments for the Ensuing Week.—Tuesday, January 19: Guildford and District Gardeners' Association's lecture; Winchester Horticultural Associations' meeting. Wednesday, January 20; Faversham Chrysanthemum Association's meeting; Royal Gardeners' Orphan Fund meeting; Sheffield Chrysanthemum Association's meeting. Friday, January 22: Manchester and North of England Orchid Society's meeting.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Horticultural Society's Garden, Turnham Green.*—Since we last visited this establishment, various alterations have been effected, and others are still in progress. A number of the less important trees have been removed from the Arboretum, which had become too much encumbered with timber, and the result is an evident improvement in its general aspect, as well as more uninterrupted room for visitors at the great exhibitions to promenade in, while there are yet ample trees left for the purposes of ornament, and to afford an agreeable shade from the scorching rays of a summer's sun. In addition to the extensive alterations which took place last spring on the eastern side of the Arboretum, the corner nearest the grand entrance to the grounds at Chiswick House has been much altered and improved, and a new American garden is at present in course of formation on the west side of the kitchen garden. In order to accomplish this, the thicket of miscellaneous trees and shrubs which previously occupied its site, has been removed, except such as were considered of sufficient value to be retained; various excavations have been made, and mounds thrown up, whose sides are planted with evergreens, Yuccas, and other ornamental plants; and, to give variety as well as afford at suitable places views of the general arrangement, the embankments are traversed by paths which are conveniently approached by flights of rustic steps. As it was desirable that the van-road to the exhibition ground should be continued from the carter's yard through the kitchen garden, a bridge, whose supports are flanked by rockwork decorated with Ferns, the lively green hue of whose fronds cannot fail to yield interest at all seasons of the year, has been thrown over the upper portion of the new ground, which is to be entered at this end through masses of Rhododendrons. It being intended that this shall be gay the whole year round, or at least nine months out of the twelve, it will be furnished with plants calculated to effect that end, and if well carried out, as there is little doubt it will be, it will not only form a pleasant retreat at all times of the year, but will also be, for obvious reasons, very instructive. *Gard. Chron., January 18, 1851.*

IRIS GARDEN.

IRIS VARTANII ALBA.

IRIS Vartanii alba has glaucous green, narrow, quadrangular leaves, the apices of which are pale greenish-yellow for about one quarter-of-an-inch in length. This may be a peculiarity of the white variety. The flowers stand about five inches high, and are overtopped by the leaves. The tubes on which they are carried are greenish-white.

The flowers, as large as those of the type, are pure white, except for delicate pale green on the underside of the falls. The style crests are long and narrow, crisped, undulated and very graceful; the standards are narrow and inconspicuous, and there is a narrow, soft pale yellow beard on the upper side of the falls. The sheaths are conspicuous, beautifully striated with green lines. The flowers are sweetly scented.

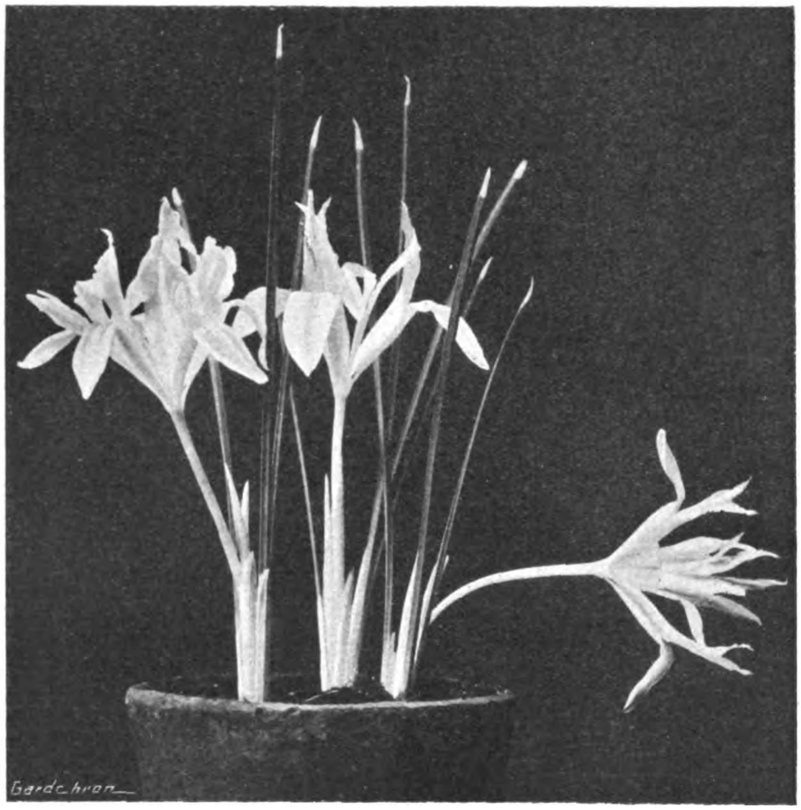


FIG. 18. IRIS VARTANII VAR. ALBA.

The plants illustrated (Fig. 18), have been grown in a pot in a cold frame from bulbs obtained from Messrs. Van Tubergen. It is well worth growing such a delicately flowering treasure in this way for the pleasure the unspotted purity of the flowers and their grace and fragrance give in the gloomy, cheerless first days of the New Year.

At Glasnevin a good-sized patch of Iris Vartanii has lived for several years in well-drained soil at the foot of a wall; grown in such a situation in the climate of Co. Dublin it is a far more satisfactory plant than it is represented to be in the late Mr. Dykes's *Handbook of Garden Irises.*

The leaves of the patch appear in December, the flowers during January and February. Several degrees of frost do not injure nor even tarnish the beautiful grey-blue flowers.

Iris Vartanii is a bulbous-rooted species belonging to the well-known Iris reticulata section. It is a native of Palestine. *Phylis Moore, Rathfarnham, Co. Dublin.*

The Week's Work.

THE ORCHID HOUSES.

By J. Collier, Gardener to Sir Jeremiah Colman, Bart., Gatton Park, Reigate.

Zygopetalum Mackayi.—This useful, well-known Orchid blooms at this season. The flower spikes appear in the centre of the young growths, therefore the plant is growing and blooming at the same time, and needs a liberal supply of water at the roots. Being impatient of frequent root disturbance, this Zygopetalum should only be repotted when the compost is exhausted and the receptacle has become too small to accommodate another season's growth. The necessary repotting is best done so soon as the flower spikes have been removed, and the new growths are a few inches high. In order to secure the best results, ample pot room should be afforded ; as a rule, a receptacle two sizes larger than the one the plant has previously occupied will be suitable. Only a small quantity of drainage material is necessary. A mixture of good fibrous loam, Osmunda-fibre cut into short portions, Sphagnum-moss and crushed crocks forms a suitable compost. The plants are liable to attacks of brown scale insects ; these should be dislodged so soon as they are detected, or they will leave brown marks on the foliage. This species grows well in a moist house, with an intermediate temperature ; it should be shaded from the direct rays of the sun at all times. The above remarks apply also to such hybrids as Z. leucochilum, Z. Sedenii, Z. Sanderi and Z. Perrenoudii. The somewhat rare Z. Roeblingianum and Z. rostratum grow best in a moist; shady position in a house having a warmer temperature.

Zygocolax.—The members of Zygocolax are hybrids between Zygopetalum and Colax jugosus, and require similar treatment to that afforded Z. Mackayi.

Calanthes.—Members of the C. Veitchii and C. vestita sections, together with the white C. Harrisii, need a decided rest after the flower spikes are removed. It is necessary to thoroughly harden and mature the pseudo-bulbs, so that when the growing season commences the new growths will start with renewed vigour. Water should be withheld entirely from the roots. and the plants placed near to the roof-glass in a house in which the temperature does not fall below 55°, where they may obtain full benefit of all the sunlight available.

FRUITS UNDER GLASS.

By T. Pateman, Gardener to Sir Charles Nall-Cain, Brocket Hall, Hertfordshire.

Tomatos.—Tomatos are ripening their fruits slowly. Where the plants are growing in large receptacles they are more under control than if planted out in borders. To obtain a constant supply of fruits the plants should be kept more or less on the dry side, but not to such a degree as to cause flagging. Feed the roots sparingly with liquid manure warmed to the temperature of the house, which should not exceed 60° during the day.

Strawberries.—Strawberry plants that have been prepared for forcing will, at this season of the year, respond more readily to heat and produce finer fruits than those that were introduced into warmth last month. Where a whole house cannot be devoted to the cultivation of this fruit a suitable place is a shelf in the early vinery or Peach house. I generally prepare a double quantity of plants for this second batch ; one batch is started into growth with the early vines while the other is placed on shelves in the early Peach house. The little extra warmth that is required for the vines will hasten the crop quite ten days or a fortnight in advance of those grown with the Peaches. Select good plants with well-matured crowns, and remove all decayed foliage. See that the drainage of the pot is perfect. The plants will require very little water until growth commences, after which they should never be allowed to suffer for lack of moisture at the roots, until such time as the berries are ripening. As a preventive of mildew it will be wise to dip the plants in a prepared mildew wash just before flowering takes place ; see that the specific reaches the underside of the foliage.

Figs.—Trees that are planted in borders may be started into growth to form a succession to those growing in pots to produce the earliest fruits. The night temperature of the house may be about 50°, a little more or less, according to outside conditions, with a rise of 5° during the day. The day temperature of 55° is only given as a guide during cold weather ; with the sun's rays it may exceed this reading with advantage, even when a little air is admitted. The Fig resents hard forcing with artificial heat during the early stages of growth, and it is far better to allow the growths to develop slowly, when there is less risk of the trees casting their fruits prematurely, and they also produce larger Figs. The trees may be syringed with tepid, soft water once or twice daily when outside conditions permit, but this should be done sufficiently early in the day to allow the plants to become dry before night. The borders should be kept in a moist condition ; when water is required at the roots it should be used in a tepid state. Ventilate the house a little on bright days but guard against cold draughts reaching the trees. As the foliage develops less syringing overhead is recommended, for the Fig dislikes a steamy atmosphere when in full growth.

THE KITCHEN GARDEN.

By F. Streeter, Gardener to Major Albert Pam, Wormley Bury, Broxbourne.

Broad Beans.—Make a sowing of a long-podded variety of Broad Beans for the earliest supplies, in boxes one foot wide and four-and-a-half inches deep. The boxes should contain plenty of drainage material and be filled with the following compost : three-parts good loam, one-part leaf-mould and one-part silver sand. Place the seeds two inches apart and one inch deep, make the soil firm and stand the boxes in a cold frame secure from frost. Keep a sharp watch for mice. So soon as the state of the ground will permit, select an open site and thoroughly trench and manure it ready for setting out the plants later.

Dwarf or French Beans. — This valuable vegetable should be forced wherever sufficient room can be found to accommodate the crop. Prepare a number of seven-inch pots and half-fill them with fairly rich soil. Sow five seeds in each pot and cover the former to a depth of one inch. Place the pots in a house having a temperature of 60° at night and 65° by day, rising with sun heat. Water the soil carefully, using tepid water.

Peas.—Undoubtedly the best way to secure early dishes of Peas is to sow seeds at the present time in boxes as advised for Broad Beans, using similar compost. Place the seeds two inches apart and half-an-inch deep and germinate them in a cool fruit house. Watch carefully for rats and mice. Admit plenty of air when the seeds have germinated. The soil of a south border should be trenched and well-manured in readiness to receive the crop when the seedlings are ready for planting out.

Spring Cabbages.—If the spring Cabbages have failed, make a small sowing of an early-maturing variety in boxes in a cold house. These seedlings should be pricked out into other boxes when they can be conveniently handled and planted out in a sheltered border.

Brussels Sprouts, Kales, etc.—See that all decayed and yellow leaves are cleared from these crops, especially after frosty and wet weather. It is an excellent plan to lightly fork the soil along the rows ; this not only sweetens the ground, but keeps it perfectly free from weeds, and adds to the tidiness of the garden.

PLANTS UNDER GLASS.

By John Coutts, Assistant Curator, Royal Botanic Gardens, Kew.

Seed-sowing.—Gloxinias raised from seeds sown during January will form a succession to those started from dry tubers last month. Streptocarpuses are also easily raised from seeds, and they make a fine display the same season. Achimenes, Clerodendron fallax, Gerbera Jamesonii and its hybrids, Naegelias, Saintpaulia ionantha, Tecoma Smithii, Tydeas, Exacum affine, E. macranthum, and Eustoma Russellianum are all choice subjects that should be more generally raised from seeds.

Ipomoea rubro-coerulea. — This beautiful annual greenhouse climber should be raised from seeds sown during January or February. The blue flowers are produced in great profusion and always attract attention. Ipomea Leari, is another beautiful blue-flowered perennial species, which may be raised from seeds or cuttings. This species is seen at its best when planted out in an intermediate or warm greenhouse.

Cyclamens.—Plants that were raised from seeds sown last August and wintered in quantity in pans or seed boxes should now be ready for placing singly in small pots. At this stage a fairly light compost is necessary ; a medium loam with the addition of a little well-decayed leaf-mould and sand, or, better still, some old mortar rubble, is suitable as a rooting medium. In any case, lime is essential for Cyclamens, and in respect of potting soils, liming is, I am afraid, too often neglected. Lime is especially deficient in potting loams cut from old pasture lands. After potting them, the young plants should be placed on a shelf or stage near to the roof-glass in a house having a temperature of 55° to 60°. Afford the roots water with great care until they are well established in the new compost.

Grevillea robusta, Albizzia lophantha and Jacaranda ovalifolia (syn. mimosaefolia).—These are three graceful foliage plants, useful for house decoration and for mixing with flowering plants in the conservatory. Seeds of all of them should be sown at this date in a temperature of 60°. Grevillea seeds often fail to germinate satisfactorily, due, I believe, to covering them too deeply, the thin, flat seeds decaying before they have a chance to germinate. It is a good plan to place the seeds on their edges in a light, sandy compost, or they will germinate successfully when sown in boxes of cocoanut fibre, or fine peat moss litter and sand, standing the boxes in an open propagating case furnished with bottom heat.

HARDY FRUIT GARDEN.

By W. Auton, Gardener to Viscount Elveden, Pyrford Court, Woking, Surrey.

Spraying.—The application of sprays is not a pleasant occupation, but it has proved to be an efficacious means of suppressing both insect and fungous enemies of plants generally, and of fruit trees in particular. It is a task which demands thoroughness, and unless every detail is carried out with careful attention, complete success cannot be expected. Many who use sprays on a large scale prefer to prepare their own fluids from crude chemicals, and where this can be done with scientific accuracy it is the most economical method. For the needs of the average private garden, however, it is infinitely better to use proprietary pastes or powders which simply require the addition of warm water to render them ready for use. Caustic soda washes are largely used as winter sprays, and are highly effective in destroying lichens and hibernating insects. Copper sulphate mixed with lime and procurable in paste form as Bordeaux mixture is a good winter fungicide, while there are recently introduced non-caustic winter washes capable of destroying a variety of insect and fungous pests. These washes have the advantage of not being dangerous to the operator, as some caustic washes are, if the fluid is by any mischance brought into contact with the skin; care should, however, be exercised when using them near growing green crops, or these will be rendered unfit for use. The manufacturers' instructions should be followed implicitly in using caustic soda. All the well-known horticultural chemists may be relied on to supply first-class winter washes with clear instructions as to how to use them, and the high quality of modern spraying machines is well-known. The final word to ensure success remains with the operator, and it cannot be too highly emphasised that thoroughness in application is the greatest factor of all, as if small portions of the trees and bushes are missed and left unsprayed, sufficient stock of the hibernating pests may be left to destroy the whole value of the work done. The actual time of spraying is not rigidly governed by the calendar, but in principle it should be done so late as practicable while the buds are still dormant. As favourable conditions for the operation are essential and not of daily occurrence, it follows that every opportunity should be taken during the next few weeks to complete the work when these favourable conditions prevail.

Apricots.—The pruning of Apricots on south and west walls should not be longer delayed, as the buds will soon begin to swell under the influence of longer days, and the work will be made more difficult. As the Apricot fruits on wood of the preceding year, as well as on spurs on older branches, so many of the young shoots as practicable should be retained. This extremely useful fruit is one of our most difficult hardy fruits to cultivate, and the sudden death of large branches for no apparent reason seems to be beyond the control of growers. The tree grows and fruits with remarkable freedom as a standard in southern Europe without showing this defect, and it is possible that our climate affords too little sunshine for its needs.

THE FLOWER GARDEN.

By F. C. Puddle, Gardener to Lord Aberconway,
Bodnant, Taly-Cafn, North Wales.

Herbaceous Borders.—Many gardeners defer the cutting down of herbaceous plants until the New Year, as the borders have a more furnished appearance in winter, and the browning growths make a good effect during late autumn. These should now be removed, and when weather conditions permit, any necessary dividing of the plants should be done, after which the borders may be top-dressed with short manure, which should be lightly forked in. During mild periods of the winter, slugs do much unseen damage to the dormant growths of herbaceous plants, Delphiniums and Asters being amongst the worst sufferers. At this season the pests work just under the surface of the soil, and if this is carefully raked from the crowns of the plants, they may frequently be discovered feeding upon the young growths. In the case of Delphiniums, the best protection is a band of either plain or perforated zinc placed around the plants. The zinc should be three inches wide so that at least one inch may be pushed into the ground. If plain zinc is used, the upper edge should be cut at frequent intervals, about half-an-inch deep, and the small tongues thus formed should be bent in alternate directions: this forms an impenetrable fence over which no slug can pass. When fixing the collars it is advisable to make sure that no slugs are left in the enclosure, and as an additional precaution a little powdered alum may be sprinkled on the surface of the soil, care being taken that the quantity used is not sufficient to render the soil acid. When collars are not used frequent dustings are necessary, and in such cases lime and soot are the safer remedies, but the first dressing should be applied just under the surface of the soil.

Chinese Barberries.—The deciduous and semi-deciduous species of Chinese Berberis are very beautiful objects when planted singly, but to fully realise their value for garden decoration they should be grouped. A dry bank, such as is often planted with Laurels and other common evergreens, of no particular interest, is an ideal place for a collection of Barberries. In such a position, where they can be planted a little above the general ground-level, their graceful growths (upright in some species and arching in others) are seen to the best advantage. They are beautiful at all seasons, as the verdant green of the young growths in spring is followed during summer by dainty yellow flowers, whilst in autumn a wonderful effect is created by the glorious coral-red berries and the lovely colouring of the foliage which hangs well into the winter; after which the warm tints of the bark of the deciduous and the mature foliage of the semi-deciduous species carry on the interest until the awakening of spring. Barberries may be planted with safety at any time from now up to the middle of March. They are easily raised from seeds which, if sown immediately in gentle heat, and the resultant seedlings grown on under cool conditions, will give plants large enough in late summer for setting out in nursery beds. Three-year-old plants are most suitable for planting in permanent positions. The most attractive garden species are:—Berberis virescens, which is one of the earliest to assume autumn colour, and its warm brown stems are very effective in winter; B. dictyophyllus, with silvery stems and glaucous foliage which turns to a rich tint in late autumn; B. aggregata var. Prattii, together with the typical B. aggregata, two of the best and most effective fruiting species; B. Wilsonae, B. Coryi, B. concinna, B. yunnanensis, B. brevipaniculata, B. Thunbergii and B. subcaulialata (Fig. 19), which gives a profusion of golden flowers that are succeeded by coral-pink berries.

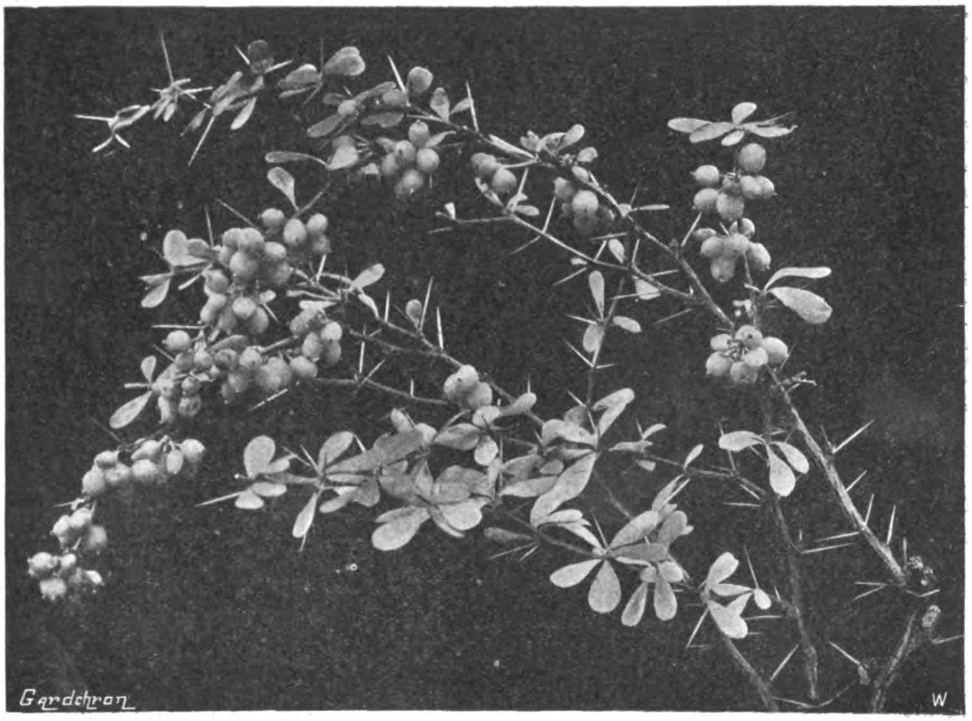


FIG. 19.—BERBERIS SUBCAULIALATA.

FOR NORTHERN GARDENERS.

By A. T. Harrison, Gardener to the Marquis of
Ailsa, Culzean Castle, Maybole, Ayrshire.

Frames.—The occupants of the cold frames, including Violets, the various cuttings put in last autumn, Cauliflowers, Lettuces, etc., should have the soil stirred between them, and if the latter is dry a copious watering should be given when the weather is mild. Do not apply water in driblets at this season, but give sufficient moisture to ensure that the plants will not require watering again for a week or two. Strawberries in pots should never be allowed to become dry, but if the pots are plunged to the rims in ashes they will not only be safe from frost, but not so liable to dry out rapidly.

Cyclamens.—Seedling Cyclamens that have not yet been potted separately should be attended to. If they have been previously pricked out into boxes or pans they should be ready for transference to three-inch pots, using plenty of leaf-mould in the compost. Grow them in a temperature of between 55° and 60° until they are developing freely. Two-year-old plants are now developing their flowers in profusion, and may be given diluted manure water, varying this stimulant with an occasional application of sulphate of ammonia.

Bulbs for Early-flowering.—These are now growing freely, and a succession should be maintained by introducing fresh batches to the forcing pit at regular intervals. So soon as the flowers show colour, the plants should be removed to cooler quarters, where the blooms will remain fresh much longer than if grown in a high temperature. Where plenty of Narcissi are naturalized in the woods, it is worth while digging up a barrowful of bulbs at this time and boxing them for supplying cut flowers. They soon throw up their crop of blossoms and do not seem to be much checked by this treatment; when they are hardened off again they may be replanted in their old quarters. Snowdrops, treated similarly, should have their flowers well-developed before lifting them, when they make a useful addition to the stock of purchased bulbs.

Hippeastrum.—Bulbs of Hippeastrum that have been resting since September should now be examined, and any that are showing flower-spikes should have their roots soaked before re-potting or top-dressing them; if a succession is desired the remainder should be introduced to a moderately warm house in the same manner later. Do not re-pot or top-dress the plants until the tip of the flower-spike is showing, as the operations, if proceeded with too soon, have a tendency to hasten the growth of foliage and retard the flowering.

NOTICES OF BOOKS.

Fungi in Nature.*

Les Champignons dans la Nature, by J. Jaccottet, will doubtless take a prominent place amongst popular illustrated books devoted to the larger Fungi. The only drawback is the price, though this is not exorbitant considering the lavish manner in which the book is produced. The coloured plates are by Paul Robert, fils, and represent 115 species. The Fungi are displayed in their natural habitats, and occupy more of the plate than do those of Bessin in Dumée's well-known atlas. They are mostly all concerned with the commonly depicted species, but include Lepiota gracilenta, Tricholoma panaeolum, T. irinum, Pholiota caperata, Cantharellus lutescens, Hygrophorus marzuolus, H. agathosmus, and Verpa bohemica. The plates on the whole are excellent, but in one or two cases, *e.g.*, Hebeloma crustuliniforme (Pl. 51) and Clavaria pistillaris and C. flava (Pl. 66), there seems a little too much pink. In the body of the text there are forty-seven line drawings to illustrate various points of structure or difference in species; these are by Dr. E. Jaccottet, and serve their purpose admirably.

After a preface by Dr. C. E. Martin, the eminent Swiss mycologist, there is an introductory chapter which deals with such matters as the Fungi in the classics, the way to begin the study of Fungi, a consideration of what one might call newspaper methods of distinguishing between edible and poisonous Fungi—with the obvious conclusion that the *only* way is to be able to identify the species from their botanical characters — cultivation, etc. A general summary of Fungi is then given. Following this there is a consideration of the Agaricaceae and a key to the more common genera. The species are then taken in systematic order. Those which are illustrated are dealt with fully, but allied species are also described, and their distinguishing characters indicated. The other families follow, but are in most instances treated much less fully.

Apart from the description, chief attention is paid to the gastronomic qualities of the species: where edible forms are concerned the best recipes for cooking are detailed; where poisonous or suspicious forms are described the reputed intestinal troubles are given. In addition, however, there is a considerable amount of information. The book justifies its title in that the habitats and seasons of the species are given, and, moreover, in such a way that the impression is gained that the author knows his Fungi in the field. Among points of interest in the work may be mentioned the fact that an attempt to cultivate Mushrooms in the old *caves à bière* at Geneva was unsuccessful—possibly on account of bad ventilation; as is well known, success on the French method has been attained in this country in the old Bath-stone quarries at Corsham, Wilts, and in the quarries at Godstone, Surrey; that in seasons where a very warm period is broken up by storms, Amanita muscaria may have sulphur-yellow stems and gills, with a darker ring becoming even brown; further, with regard to this species the German Swiss—relying on statements from Germany that the Fly Agaric is not poisonous when peeled—have been compelled to withdraw their support to the belief; that formerly the Chanterelle was sold at Geneva by weight, but owing to the market-people keeping them in water and incidentally making them more liable to fermentation and buyers more liable to stomach troubles, a regulation that they should be sold by measure was introduced; Hygrophorus marzuolus is sold at Lausanne in great quantity as the St. George's Mushroom—and Tricholoma cnista var. evanescens, common in the Alps and Jura, has also been mistaken for this species: and that in the Jura, Tricholoma tigrinum causes as much poisoning as Entoloma lividum does in the plains.

As has been suggested above, the paper and printing are excellent. The binding is somewhat ornate and the guard paper has a design with Sepultaria Summeri as a motif—a Discomycetous fungus recorded always from under Cedar, of which it may be one of the mycorrhizal Fungi associated with the roots.

THE MORAINE POT.

Mr. Collingwood Ingram has designed and patented a flower pot which he has personally tried and proved to be a valuable aid to the cultivation of certain plants. As he intends to let the provisional patent lapse he has kindly sent us the following description in order that his fellow gardeners may benefit by the invention.

The "moraine pot" (Fig. 20), is designed to reproduce the conditions required by plants in Nature. It is a well-known fact that in the alps (and to a slightly lesser degree, in the lowlands also) during the summer months, when growth is at its height, practically all plants derive their root moisture from below. This is essentially the case in moraines where melting glacier water is continuously soaking through the subsoil and supplying the roots with a constant flow of subterranean moisture.

It is claimed for this pot that these conditions are reproduced artificially with the minimum of labour. By its use, although the plant is getting as much water as it requires, the uppermost layer of soil need not be unduly wet, and the danger of damping off is consequently reduced. The surface soil is never disturbed by heavy overhead watering, which is, of course, a very important factor where small seeds are concerned and when tiny plants are commencing to grow.

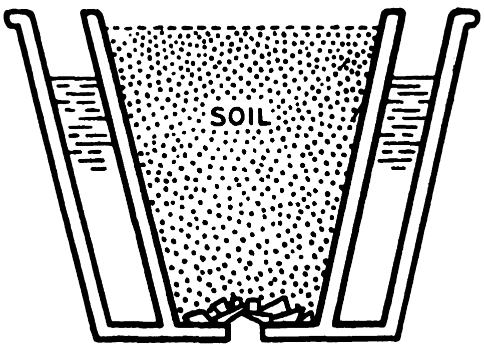


FIG. 20.—A MORAINE POT.

The "moraine pot" is supplied with an outer cover or water jacket which should be filled periodically with water—once or twice a week in summer. The water gradually percolates through the porous walls of the inner pot, thus keeping the soil cool, moist and fresh. A hole at the bottom of the inner pot ensures perfect drainage and keeps the soil sweet. The "moraine pot" is not only very valuable for the cultivation of "difficult" alpines, but is also a perfect medium for the propagation of plants from seeds and cuttings. The percolation and, therefore, the amount of moisture the soil in the inner pot receives, may be regulated by placing coarse or fine sand with the water in the surrounding jacket.

WINTER FLOWERS.

The number of plants in flower at midwinter out-of-doors in the present season is much fewer than has been the case in recent years, but this is not surprising seeing that the weather has been much more wintry than usual. Whatever the weather conditions, however, the growth of vegetation does not entirely cease, and on New Year's day I noted the following interesting list of plants in flower, most of which are by no means uncommon at this season:—Arbutus Unedo, A. Andrachne, A. hybrida, Alyssum maritimum, Cheiranthus Allionii, Chimonanthus fragrans, Dendromecon rigidus, Erica codonodes, E. vagans, several varieties of E. carnea, including alba, rubra, King George and darleyensis, Gentiana sino-ornata, Grevillea rosmarinifolia, G. sulphurea, Hamamelis virginica, Helleborus nigra, Iberis gibraltarica, Iris unguicularis, Lonicera fragrantissima, Lupinus polyphyllus, Lithospermum prostratum, Prunus sulhirtella, Polygala Chamaebuxus, Primula Winteri, Rosmarinus officinalis, Viburnum Tinus, and V. macrocephalum. Occasional flowers in quite good condition of Roses and Chrysanthemums still remained, while a moderate sprinkling of flowers were to be found on Aubrietias, Polyanthuses and Violas.

Amongst native plants, several of which bore seed pods approaching maturity, were noted:—Bellis perennis, Capsella Bursa-pastoris, Cerastium vulgatum, Claytonia prefoliata, Lamium purpureum, Matricaria inodora, Potentilla verna, Senecio vulgaris, Stellaria media and Taraxacum officinale. *W. Auton, Pyrford Court Gardens, Woking.*

ALPINE GARDEN.

VINCA HERBACEA.

It is not easy to understand why the subject of this note should so seldom be seen in the average garden, for it is a species of peculiar distinction and unquestionable merit. The only explanation which I can suggest is that, being entirely herbaceous, the plant is apt to get forked out and lost. This fate must certainly often befall many of the rooted runners; which became established within a couple of feet or more of the parent plant. This having happened too frequently in my own rock garden, I am now giving V. herbacea a considerable space to itself, save for some dwarf Daffodils and other bulbs, in the open woodland, where it can spread at will, and, I hope, cover the ground in spring and summer with its long succession of blue, starry flowers.

V. herbacea is quite reasonably hardy, but it seems to prefer a friable, well-drained soil with full sun. *J.*

PRIMULA SIEBOLDII.

I have frequently been confronted with the question: "Why has this Primula such a short life, seeing that it is described as 'hardy'?" In numerous instances the plants lived for several years, attained a good size and then disappeared without any apparent reason. One cause of losses, though not the only one, has been the destruction of plants in winter when they were at rest. The crowns are often covered by leaves and soil in winter, and if left unlabelled run a serious risk of being destroyed in the periodical cleaning up and forking of the soil, even in a rock garden where the small hand-fork is employed. To prevent this risk, a good permanent label is the obvious remedy.

But I know that this does not account for the majority of the losses, which are as common among old, established plants with numerous crowns as with small specimens, which are most liable to suffer from disturbance. We must seek for something else in the case of the old plants.

Sometimes a little top-dressing in autumn will save the plants. In course of time soil sinks or is washed from the crowns and roots and they are left too much exposed. This is responsible for a good number of the failures. On the other hand, these losses occur among plants that are top-dressed, and I am inclined to attribute many of the deaths to drought, especially as they frequently occur in spring, when dry weather is so injurious to plants making their growths.

I have come to the conclusion that P. Sieboldii and its varieties require a cool, rich, moist soil, and that drought at any season is inimical to them and leads to by far the majority of the losses. Mr. Farrer recommended such a soil for P. Sieboldii; his cultural experiences were largely gained in growing his plants in a cool district with a heavy rainfall. The casualties among pot plants, which may be kept more under control as regards watering, etc., are very much smaller than those in the open, and unless we can attribute these to want of hardiness, which I am not prepared to do, we ought, I think, to come to the conclusion that most of the losses, though not all, are due to insufficient moisture and too warm positions.

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* *Les Champignons dans la Nature*, by J. Jaccottet. Delachaux and Niestlé S. A.; Neuchatel. 76 coloured plates, 47 text figures, 243 pages. Price 30 fr.

The value of this Primula surely justifies some discussion on such points, and will be sufficient apology for endeavouring to elicit the views of other cultivators on this fine old plant with its delightful varieties.

NIEREMBERGIA RIVULARIS.

FEW plants from the River Plate are hardy enough to succeed in our climate, and doubts have even been expressed regarding the prudence of exposing Nierembergia rivularis, sometimes called the Cup Flower, to the rigours of our winter. This doubt has been fostered by the unhappy experience of some who have purchased scraps of plants so over-propagated that they were unable to grow with the freedom such a plant requires for success.

To see a carpet of this Nierembergia, with its glossy leaves, covering the ground and thickly spangled over with its pearly-white flowers, is to have the delight of admiring one of the pictures of floral charm which imprint themselves indelibly on the mind of the observer. A sunny, slightly sloping bank of sandy soil, full of moisture from below all the summer, is an ideal place in which to grow Nierembergia rivularis; the next best situation is a broad, sunny rock garden pocket made water-tight to within six inches of the surface of the soil, with stones and gravel beneath and sandy soil above, with the pocket filled with water during the summer, but with an outlet provided to drain away the water during the resting time.

Even those who cannot secure these conditions may grow it in a well-drained pan of sandy, gritty soil, in a frame during the winter, and in spring place on an inverted flower pot in a pail of water, filled to about an inch over the base of the pan. A friend of mine cultivated N. rivularis in this way for very many years, and, artificial looking as were its surroundings, he and his friends derived much satisfaction from its beauty, as it displayed its large white flowers above the glossy foliage. Nierembergia rivularis is easily increased by division in spring. *S. Arnott.*

CHRYSANTHEMUM ALPINUM.

THIS pleasing alpine comes from a fairly high altitude, and the illustration (Fig. 21), shows it growing on the Gruben Alp. It loves moisture about its roots, therefore it is better suited to the moraine than the higher and drier parts of the rock garden. Possessing attractive foliage and producing a goodly number of glistening white flowers, this species is well worthy of cultivation. Not all who have grown it have been successful with Chrysanthemum alpinum, but those who have failed should remember its liking for moisture—not stagnant moisture—and sunshine, and the desirability of providing it with a top-dressing of gritty soil in spring. Protection of the new growths from the terror that gnaweth in darkness—the slug—should also be borne in mind.

HARDY FLOWER BORDER.

ORNAMENTAL GRASSES.

FEW gardeners are aware of the wealth of beautiful hardy grasses of an ornamental character which is available for making the flower border additionally attractive at all seasons, even in winter. It has been a revelation to many to know that a grass garden in itself is possible, as demonstrated at exhibitions in recent years.

For the flower border, or as an edging to beds and borders, the following are amongst the most useful and attractive :—

Avena sterilis (the Animated Oat) is an annual less than two feet high, with drooping panicles of large spikelets, which, when ripe and dried, will, if placed on the warm hand, often move by the contraction of the hairs by which they are covered, hence the popular name.

The species of Briza (Quaking Grasses) are exceedingly handsome annuals, growing from one to one-and-a-half foot high, with pretty, heart-shaped heads in panicles. These grasses are much prized for the making of bouquets. B. maxima, the large form, and B. gracilis, the smaller, are both very ornamental plants.

Eragrostis elegans (Love Grass) is a vigorously growing annual, producing numerous branching inflorescences of a rich purple colour. The plant is very showy; it requires plenty of room.

Stipa pennata (Feather Grass), is one of the most beautiful and graceful of perennial grasses, growing two to three feet high. The numerous undulating inflorescences are covered with extremely fine silvery hairs, or down, which render them most charming subjects in the herbaceous border. The "feathers" are much prized for the making of bouquets in winter.

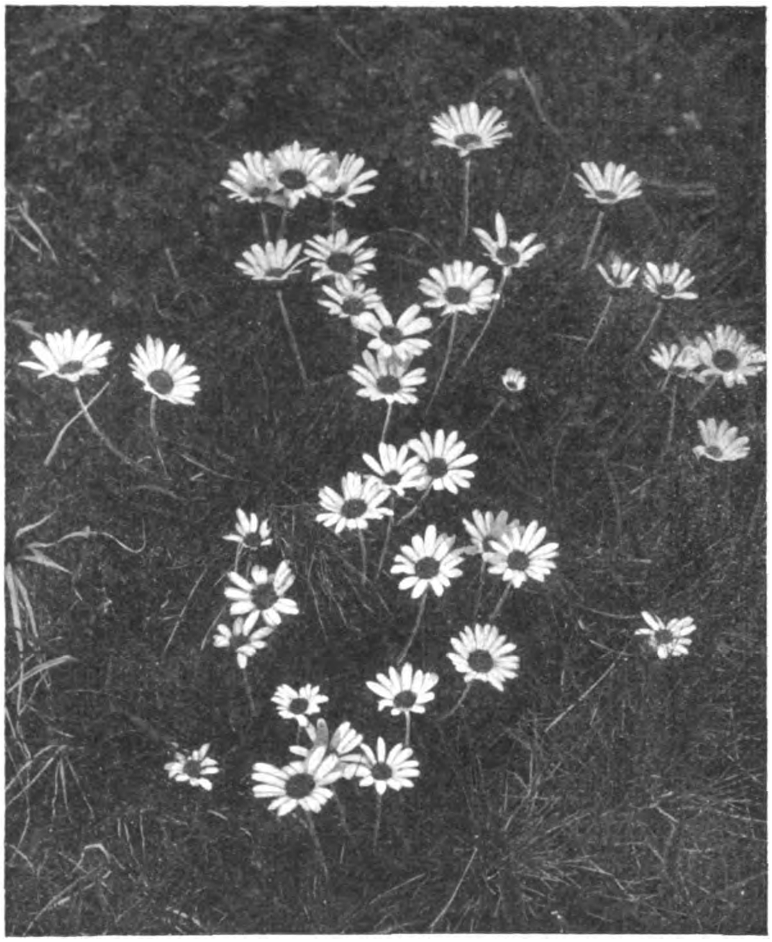

FIG. 21.—CHRYSANTHEMUM ALPINUM.

Bromus brizaeformis (Brome Grass) is the best of all the Brome Grasses. It is a biennial. The best results are obtained from seeds of this grass sown in July and early August. The plant grows about two feet high. The large, graceful drooping heads, like those of Quaking Grass, are exceedingly ornamental, and much prized for cutting for winter decorations.

Lagarus ovatus (Hare's Tail Grass) is a showy annual, growing from one to one-and-a-half feet high, and producing large, showy plumes in downy tufts.

Zea Mays japonica fol. variegata (Variegated Maize) is, perhaps, one of the most valuable and decorative of all grasses, having tall stems three feet to four feet tall, and broad variegated foliage, beautifully striped with cream and white on green. The variety comes true from seed. Few grasses could be better adapted for planting near the seaside, or for lighting up the herbaceous and shrubbery borders. This half-hardy annual requires to be sown in February or March in gentle heat, the seedlings hardened off and planted out in May; or seeds may be sown outdoors in May or June, in a light, rich, warm soil. *W. Logan.*

GILLENIA.

GILLENIA trifoliata is not so commonly grown as it deserves to be, for in addition to being a very pretty garden plant, its flowers are acceptable in a cut state, possessing the quality of lightness. One other species, G. stipulacea, is known to cultivation, but this is rarely seen in gardens. It produces white flowers in June on stems about two feet in height; the leaves are lanceolate and deeply incised.

G. trifoliata has red to white flowers in panicles the calyces becoming red after the petals have fallen. The plant grows to a height of from one-and-a-half foot to two feet, and was introduced from the northern United States in 1713. It is figured in *Bot. Mag.*, t. 489, under the name of Spiraea trifoliata. *Ralph E. Arnold.*

PHORMIUM ALPINUM.

FOR gardens or watersides, where the commoner Phormium tenax would be too large, the dwarf species, P. alpinum (Hookeri) makes an excellent substitute. The leaves of this species are barely half the height of those of the taller one, and often do not exceed three feet. They are sword-like, stiff and upright, green rather than glaucous, and the pale-yellow flowers are borne on stems at least twice the height of the leaves.

P. alpinum appears to be absolutely hardy, hardier, that is, than P. tenax, and this fact will appeal to those who have failed to grow the latter on account of climate. Moreover, being so much shorter and stiffer than its congener, P. alpinum is well adapted for windy situations. Indeed, I have often seen its leaves entirely uninjured by wind which has made shreds and ribbons of those of the larger species. *J.*

ORCHID NOTES AND GLEANINGS.

LAELIO-CATTLEYA SANTA CLAUS.

THIS handsome cross between L.-C. Soulange and L.-C. St. Gothard appeared in the nurseries of Messrs. Stuart Low and Co., Jarvisbrook, Sussex, who sent it to me for examination, the infloresence coming as a pleasant surprise on Christmas Day.

Although the flower is produced on a small seedling, it is large and finely proportioned; the sepals and broad petals are coloured light mauve with pearl-white ground showing between the veining. The base of the lip is coloured like the petals, and the rest is chrome-yellow, with thin dark lines inside. The broadly-expanded front is ruby-purple with narrow white margins, the front portion being much undulated and fringed in several folds.

The wavy-edged development in this and some other of the finest Laelio-Cattleyas, raises a question of how this is produced, which Orchid hybridists would find interesting to follow. None of the showy Cattleyas which are in the composition of the hybrid under notice is noted for a much frilled lip, and the Laelias in it are distinctly plain edged.

Cattleya Dowiana is the first step in this case, and the inference is that in the successive crossing of dissimilar species, the nerves and veining of the lip in their progeny become more numerous and ample, and this produces the folded undulation in the front of the lip. Such subjects give great opportunities to the cultivator, for under good culture the lip expands and its beauty intensifies in a great degree, the folds opening laterally in response to the firmer substance of the well-defined blade. *J. O'B.*

ZYGOPETALUM MACKAYI.

ORCHIDS that produce bold spikes of flowers during the winter are always valuable, and the flowers are especially appreciated when they are distinct in colour and shape. The cut spikes of this Orchid adapt themselves to indoor decorations admirably. This species, was introduced so far back as 1826, from Brazil, therefore, it has been in cultivation for a century, and to-day is in demand for both export and the home market, which illustrates the changes which take place even in the uses of flowers.

Being one of the easiest of Orchids to manage, there is no reason why its cultivation should not be attempted in gardens even where there are no pretensions of growing Orchids generally. It is often found succeeding luxuriously in a house where no other Orchid is grown. Two plants shown at the R.H.S. meeting on December 13, 1892, had one-hundred-and-sixteen large flowers collectively.

The type species, its varieties crinitum and intermedium, vary only in size and colour, and for practical purposes may be treated alike. Pots are the best receptacles for these strong-growing plants, and as they are robust rooters they should be given a fair amount of pot room. The compost should consist of equal parts of fibrous peat, loam, and Sphagnum-moss, with sufficient fine crocks added to keep the compost sweet and open. It is advisable to remove all the earthy particles from the peat and loam, as there is the danger of the fine soil washing down to the drainage and blocking it.

The roots are of a soft, succulent nature, and will not live in a sour compost; hence the necessity of a clean, open rooting-material. Repotting should be done annually, at the time the new growths begin to produce roots.

Coming from the same district as Laelia purpurata and some members of the Cattleya family, the cultural treatment, as regards temperature and ventilation, is essentially the same, with the exception that the Zygopetalum will not withstand the same amount of sunshine as either of the other Orchids mentioned, therefore, a shady position should be selected in a house where an average temperature of about 60° is maintained. The supply of water should be constant during the growing season; strong, healthy plants are rarely at rest, but when the pseudo-bulbs are completed much less moisture will suffice. The usual precautions are necessary in regards to the application of water to newly-potted plants.

There are several hybrids which have been raised from the type species and its varieties, which are a decided improvement on the original plant, and comprise a most useful and beautiful race of winter-flowering Orchids. They include such useful sorts as Z. Blackii, Z. Perrenoudii, Z. leucochilum, Z. Sedenii, and Z. Sanderi.

Zygopetalum Mackayi also enters into the parentage of several members of the bigeneric hybrid, Zygocolax, which is also a useful family of Orchids on account of the unusual colour of the flowers. *J. T. B.*

TREES AND SHRUBS.

BERBERIS AQUIFOLIUM (MAHONIA).

THIS very common plant is not in great favour with lovers of hardy shrubs, but if given the treatment suggested below, it will become an object of beauty throughout most of the year. Do not allow it to flower in spring, but cut it hard back and remove all old leaves, leaving it trimmed to a regular shape. During April and May the young growths will be attractive and conspicuous, first a bright green, changing to scarlet, and gradually assuming the usual brown tint as the summer advances. Again, about August, remove all the tips of the branches; this will cause growth to break again before winter, and those young growths will remain a rich brown red—instead of the usual dull brown or green of the older leaves—through the winter. After a hoar frost, I know of no shrub more beautiful, when every leaflet has a well-defined margin of glistening silvery white, as if it had been painted by a clever artist. When left to develop in its own way, perhaps no shrub grows more straggly and untidy; its yellow flowers are not welcome when Daffodils are blooming, and very few folks admire its mournful berries; moreover, old leaves become dirty, ragged, and much rubbish collects around the stem bases.

COTONEASTER HUMIFUSA.

THIS is a beautiful, creeping, evergreen shrub that is apt to be overlooked when planning a rock garden. It always attracts attention when grown, by the manner in which it spreads in an embracing attitude over large stones, where it seems thoroughly at home. When covered with its scarlet berries it forms a conspicuous object of beauty in the rockery, resembling Nertera depressa of the greenhouse. Its habit of growth is downward, therefore, it should be planted rather high up on the rockery or it will soon run over the path. It is doing well here on a northern aspect, in soil which is mainly decayed vegetable matter. *R. Gardner, Heywood Gardens, Cobham, Surrey.*

AUCUBA JAPONICA MACULATA.

MR. COPLEY, p. 6, evidently regards the variegation or maculation of the leaves of the above plant as a guide to its sex, for he states, "Whenever I have examined the flowers of a variegated spotted Laurel they have been found to be staminate. Whenever I have examined the flowers of the green form they have been pistillate." With a wider experience, he may find that this is not always the case. A few facts will, perhaps, make the case clear. A. japonica was introduced in 1783. Bean states in *Trees and Shrubs Hardy in the British Isles*: "This first plant was the well-known yellow spotted form (maculata), and a female, but owing to the absence of pollen it was not until Fortune, sixty years later, introduced the green-leaved male plant, that the great beauty of the Aucuba as a berry-bearing plant became known. Now, both green and variegated plants of both sexes are common."

My first acquaintance with A. j. maculata dates back to 1878. The female form described by Mr. Bean was then very commonly planted in shrubberies. So far as I can remember it never bore fruit. Fortune's green-leaved male, although introduced thirty-five years previously, would not appear to have been planted generally. When I went to Messrs. J. Veitch and Sons' nursery in 1887, a dwarf, green form of Aucuba, beautifully berried, was being sold in pots as a market plant. About twenty-five years ago, I first noticed an occasional berry on large bushes of A. j. maculata; as there were no male plants on the estate, I assume they were pollinated by insect agency. Later, I purchased for my employer, several hundred green Aucubas to plant in shady places. Among them we have many types and both sexes, and since their advent the old A. j. maculata has borne fruit freely. Though the flowers on this old form are pistillate, it is, as I stated before, not impossible for a spotted-leaved male form to have been raised, indeed, Mr. Bean states plainly that "variegated plants of both sexes are common." *J. Comber.*

PHYLLODOCE.

OF the genus Phyllodoce (Bryanthus) there is no more beautiful species than P. empetriformis, the best known and most easily-grown member of the family. It is a low, semi-prostrate shrub, seldom rising much above nine inches, with deep green, glossy, Heath-like foliage.

The flowers, which appear in April or May from the leaf-axils at the tips of the tufty twigs, are pitcher-shaped, about a quarter-of-an-inch long, and of a clear rose-crimson, for which the rather dark foliage is an admirable background. The blossoming season extends onwards into summer, and there is often another crop of blooms in autumn. It is remarkable that a dwarf shrub of such outstanding merit should so seldom be seen in gardens, for it will grow well in any moderately cool loam in which Heaths prosper, and it does not object to a little shade.

Like the foregoing, P. Breweri is a native of western North America, where it is found growing on high altitudes of the Sierra Nevada, It is as hardy as P. empetriformis, but perhaps not quite so adaptable in gardens, being a little more impatient of drought, and a great sun-lover. It bears a close resemblance to its congener in stature, foliage and habit, but can at once be distinguished by the flowers, which are produced in May and June in a terminal raceme instead of singly. Individually, the blooms are very lovely, the corolla, which opens flat, being a lively shade of rosy-crimson.

P. coerulea (syn. Andromeda coerulea), a high alpine of many parts of the northern hemisphere, including Scotland, is a dwarf shrub of about six inches, with the same linear leaves and tufted, lowly habit.

The flowers, which appear singly, or in small umbels, are pitcher-shaped, bluish-purple and about one-third-of-an-inch long. P. coerulea is always rare, both in gardens and nurseries, probably because it is a difficult plant to accommodate in English gardens with that coolness, not merely of soil but of atmosphere, which its lofty mountain homes provide and without which it is never very happy. I find that it does fairly well in a gritty soil freely mixed with old, black leaf-mould, the bed having a slight slope to the north-west.

Phyllodoce aleutica, if one may be guided by its name, comes from the Aleutian Islands of Alaska. It is a very uncommon species, probably rarer than the preceding, but with us it has so far proved successful in such conditions as I have described above. P. aleuticus is in foliage and habit much like the rest of the family, but the leaves, which bristle so abundantly on its upright twigs, are a peculiarly bright and cheerful green. The flowers are urn-shaped and pure white. *A. T. Johnson.*

INDOOR PLANTS.

PITCAIRNIA CORALLINA.

THIS extremely interesting Bromeliad is considered to be "the finest for decorative purposes of all the seventy known species of the genus" Pitcairnia. A native of New Grenada, it was first introduced to cultivation about 1870, by M. Linden, of Brussels, who appears to have received it from the Andes of the province of Choco, in New Grenada. The honour of first flowering it in Europe belongs to Baron Rothschild, in whose garden at Ferrières it bloomed in 1874. Many years ago Sir George Macleay had a fine collection of indoor plants at Pendell Court, near Bletchingley, and here it produced the inflorescence which is figured in *The Botanical Magazine* (t. 6600), of 1882.

There appears to be no great difficulty in growing and flowering this species under cultivation, provided the plant receives plenty of heat and moisture, such as a stove provides, and is well established in a pot. In March of 1925, a specimen in the Water Lily house, in the T. range, at Kew, bore several large inflorescences, and as the numerous flowers, as well as the peduncle, are of a brilliant scarlet red colour—brighter and less crimson than in the *Bot. Mag.* illustration—it proved a great attraction.

Pitcairnia corallina is a stemless plant, with leaf blades two to three feet long, each on a stout petiole a foot long. Although the leaf-blades are not spiny, there are decurved, horny spines on the margins of the petiole. The leaves are plicate, about three inches wide, and very much like those of Curculigo recurva, a once popular foliage plant. The inflorescence is heavy, which is probably the reason why the peduncle is usually abruptly recurved, thus presenting the raceme in a pendulous or more or less horizontal position. The raceme figured in our Supplementary Plate was about fifteen inches long, and produced at Kew. The illustration admirably depicts the flowers and their arrangement on the raceme, on a reduced scale, but colour is needed to convey an adequate idea of the brilliance of the flowers. The latter, in addition to the stout, vivid, scarlet-red sepals, have petals which extend for a couple of inches beyond the sepals—as shown towards the base of the raceme in our illustration—and equally long stamens, bearing anthers half-an-inch long on white filaments.

During the past year, Pitcairnia corallina flowered at Kew in the Aroid House, near the main entrance to the Royal Botanic Gardens, as well as in the Water-Lily house (see *Gard. Chron.*, March 28, 1925, p. 222).

JACOBINIA PAUCIFLORA.

A SMALL batch of the above plant makes a pleasing display in a warm greenhouse after mid-December and on through January, the exact period of flowering varying a little according to the cultural treatment, and whether all the plants have been kept in the same temperature.

To obtain good flowering specimens in one season, grow three plants in a five-inch pot, and the next year, should larger specimens be required, these plants can be transplanted to eight-inch pots. One plant, however, when well-grown, will fill an ordinary forty-eight-sized pot. A small amount of feeding is beneficial when the buds are being formed; feeding is also necessary for plants that have not been potted on and are root-bound. The propagation of this plant is fairly easy from cuttings inserted in spring.

The scarlet and yellow tubular flowers are attractive and appreciated, and provide a change to Chrysanthemums and Ericas. Like these latter plants, the Libonia makes a good subject for house decoration. I have kept the same plants for a fortnight in a large window of a drawing-room.

The nomenclature of this plant is somewhat confused, for no two authorities, so far as I can discover, give the same generic name. *Johnson's Gardener's Dictionary* uses the name Libonia, under which it is known in gardens, and states that the plant was named in honour of M. Libon. *Thompson's Gardeners' Assistant* (1901 edition) refers it to Jacobinia, and mentions four or five species, but does not include floribunda. And what makes the matter more complex is the fact that the colours of the varieties mentioned in Thompson's book are undoubtedly meant as self-colours, whereas the flowers of J. pauciflora are bi-coloured. *C. Turner, Ampthill Park Gardens.*

CANNAS.

THERE are many beautiful varieties of Cannas which are invaluable for conservatory decoration, especially when their long season of flowering is considered, for they bloom continually through the summer and autumn.

They are especially useful when grown in small pots for furnishing the plant stages; for this purpose a start should now be made with an early batch. Select strong rhizomes and after trimming off the dead roots and decayed portions, place them singly in four-inch pots; at this stage the rhizomes should be barely covered.

Cannas are gross feeders, and a rich compost is necessary. They also need plenty of heat and moisture. Start them into growth in a house having a temperature of 60° to 65°. At this stage great care should be exercised in affording water to the roots, as they are very apt to damp off before they make new roots and start into growth. This trouble is not so apparent with strong, fresh, home-grown stock, but purchased plants often prove troublesome in this respect, due, no doubt, to the rhizomes being overdried.

I find that Cannas winter best when stood on a moist, earthen floor.

When the plants have well-filled their pots with roots they should be transferred to six-inch pots in which they may be flowered. The compost should consist of a good, rich loam, mixed with well-decayed farmyard or old Mushroom bed manure, and sufficient clean, coarse sand to render the soil open and porous. When cultivated in this way, growth should be restricted to one strong shoot; when the plants have well filled their flowering pots with roots, feed the latter liberally.

The types suitable for growing in this way are represented by such fine varieties as J. B. Van der Schoot, The President, President Meyer, Fiery Cross, Oiseau de Feu, Victorie, R. Wallace, and the Gaikwer of Baroda. Where large specimens are required for furnishing beds in the conservatory, three or four rhizomes should be started in six-inch or seven-inch pots, afterwards shifting them into ten-inch pots; or, if desired, they may be placed directly in their flowering quarters, in which case very little water should be given them until they start into growth. *J. Coutts.*

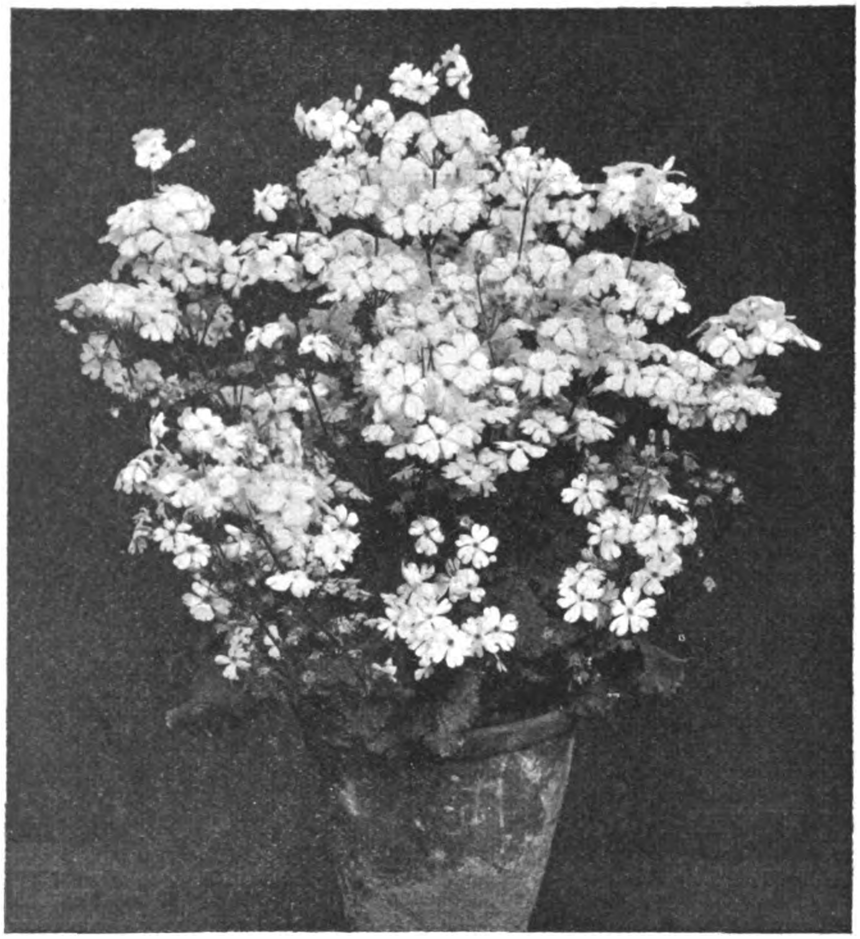

FIG. 22.—PRIMULA MALACOIDES VAR. GOLDEN EYE.

PRIMULA MALACOIDES VAR. GOLDEN EYE.

AMONG the several varietal forms of the popular Primula malacoides the variety named Golden Eye is quite distinct and as free-flowering as the type. The illustration (Fig. 22) shows how shapely and elegant a well-grown plant can be.

To freedom of flowering and neat habit of growth must be added two other excellencies, i.e., pure white flowers and a small golden eye.

This variety emanates from Messrs. J. Carter and Co., Raynes Park, who exhibited specimens at the meeting of the Royal Horticultural Society held on April 11, 1925, when an Award of Merit was made in its favour.

When it becomes better known P. malacoides var. Golden Eye cannot fail to become a popular plant for the decoration of the cool greenhouse and conservatory.

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PETER COLLINSON: A QUAKER HORTICULTURIST.

IT is pleasant to reflect that this very interesting biography* comes from the pen of one who lives on the very spot where Peter Collinson had his second garden, and where even to this day are to be seen some of his trees, including the Cedars of Lebanon and the Portugal Laurels, and the remains of his garden walls. A master of Mill Hill School, and its historian, Major Brett-James, is admirably qualified for the task, and has succeeded in giving us a very convincing portrait of that excellent eighteenth century horticulturist, supplemented by an account of the times in which he lived and the many friends he made during his long and useful life. Nevertheless, many will no doubt demur when they find Collinson referred to as "one of the leading botanists of the period"; and, further, when they meet the statement that John Bartram became "the finest botanist of his time." Whilst it is true that the word "botanist" was sometimes applied rather loosely in the eighteenth century, its distinction from "horticulturist" was well-defined even then, as may be seen by referring, for instance, to Linnaeus's *Philosophia botanica*. That Collinson was a lover and promoter of botany and natural history generally, is admitted, and he earned well-merited recognition at the hands of Linnaeus when the genus Collinsonia was founded; that John Bartram, celebrated as a collector of American plants, had some considerable knowledge of botany, is also granted; but can the laudatory phrase used by our author in either of these cases be fully justified? One would rather look upon Collinson as a very notable example of a man who had loved natural history all his life, and who did all in his power to encourage it; who had lived a peaceful life with his mind attuned to natural beauty, but without any desire to systematize his knowledge; and whose general outlook on men and affairs was always that of a benevolent and well-balanced mind.

In the present work the fullest available details of the Collinson family are brought together for the first time. At least from the fifteenth century it appears to have been located in Westmoreland: the earliest name mentioned being that of John Collinson, of Kendal, in the year 1409. However, Peter Collinson was a Londoner by birth, being born on the 28th January, 1693/4, "in a house opposite Church Alley, St. Clement's Lane." From his earliest years he was a lover of flowers: "Being sent at two years old to be brought up with my relatives at Peckham, in Surrey, from them I received the first liking to gardens and plants. Their garden was remarkable for fine cut greens, the fashion of those times, and for curious flowers." With the exception of one trip to the Netherlands in early manhood, and an occasional visit to some part of England, he appears to have pursued his quiet, useful life, gravitating between his business house in "Gracious Street" (Gracechurch Street), where he and his brother were cloth merchants, and his "little cottage" at Peckham, then a pretty village. In 1749 he moved to Ridgeway House, Mill Hill, where he had wider scope to carry on his planting of exotics. No trace can now be found of his Peckham garden, which was said by Peter Kalm, who visited it in 1748, to be "a beautiful little garden, full of all kinds of the rarest plants, especially American ones." It is generally presumed that Linnaeus, during his short visit to England in 1736, saw Collinson in his Peckham garden; although, in a letter to Linnaeus in 1765, Collinson wrote: "I am thinking what a many and variety of occurrences have happened since I saw my dear Baron at my house in London." As Collinson states that he was away most of the time Linnaeus was in England, it seems not improbable that the latter went to the business house in Gracechurch Street, perhaps in the company of Pastor Tobias Björk, with whom Linnaeus lodged at his house in Ratcliff Highway; and, in fact, in several of the letters to Linnaeus, Björk is mentioned as a mutual friend.

PETER COLLINSON. F.R.S. S.A.S. ACAD. REG. BEROL. et SVEC. SOC.

PETER COLLINSON.

(From *Nichols' Literary Anecdotes*.)

All this is interesting in connection with a tradition that Linnaeus planted two Cedars at Mill Hill to commemorate his visit there. Major Brett-James is inclined to allow some weight to this tradition, and brings forward some evidence that Collinson was allowed by his father-in-law, from whom he inherited Ridgeway House, to plant things in the garden several years before 1749; and, further, that the Linnean Society "held a field meeting and picnic in the grounds of Mill Hill School" in 1835, to commemorate Linnaeus's planting of the Cedars. The latter event seems also of the nature of a tradition as the Society's records contain no reference at all to it; and it must have been an unofficial gathering of a few enthusiastic Fellows. One might suppose that Collinson, visited by Linnaeus at his house in Bishopsgate Street (where he no doubt kept a small museum), found it more convenient to take his visitor to Mill Hill than to Peckham; and thus lend some more weight to the tradition. However, a tradition remains a tradition until some substantial evidence is brought forward to change it into history.

Collinson's letters to Linnaeus, covering many years, enable one to see how valuable a friend he became. As a unique source for obtaining new American plants and seeds, Linnaeus owed a debt to Collinson; and if Collinson's letters were not those of a scientist eagerly discussing technicalities, they were no doubt much appreciated for the warm friendship and the love of Nature they expressed. The purchase of Patrick Browne's herbarium of Jamaican plants alone was a service which showed, not only Collinson's business acumen, but also his appreciation of what its botanical value would be to Linnaeus. In several of these letters are passages which show in a charming way the poetic side of Collinson's mind; "How ravishing to see the swelling buds disclose the tender leaves!" "How delightful to see the order of Nature! Oh, how obedient the vegetable tribes are to their great Law-giver! He has given this race of flowers a constitution and fibres to resist the cold. They bloom in frost and snow, like the good men of Sweden." He also tells Linnaeus: "my favourites [are] the great tribe of Narcissuses," which, though quaint, shows excellent taste.

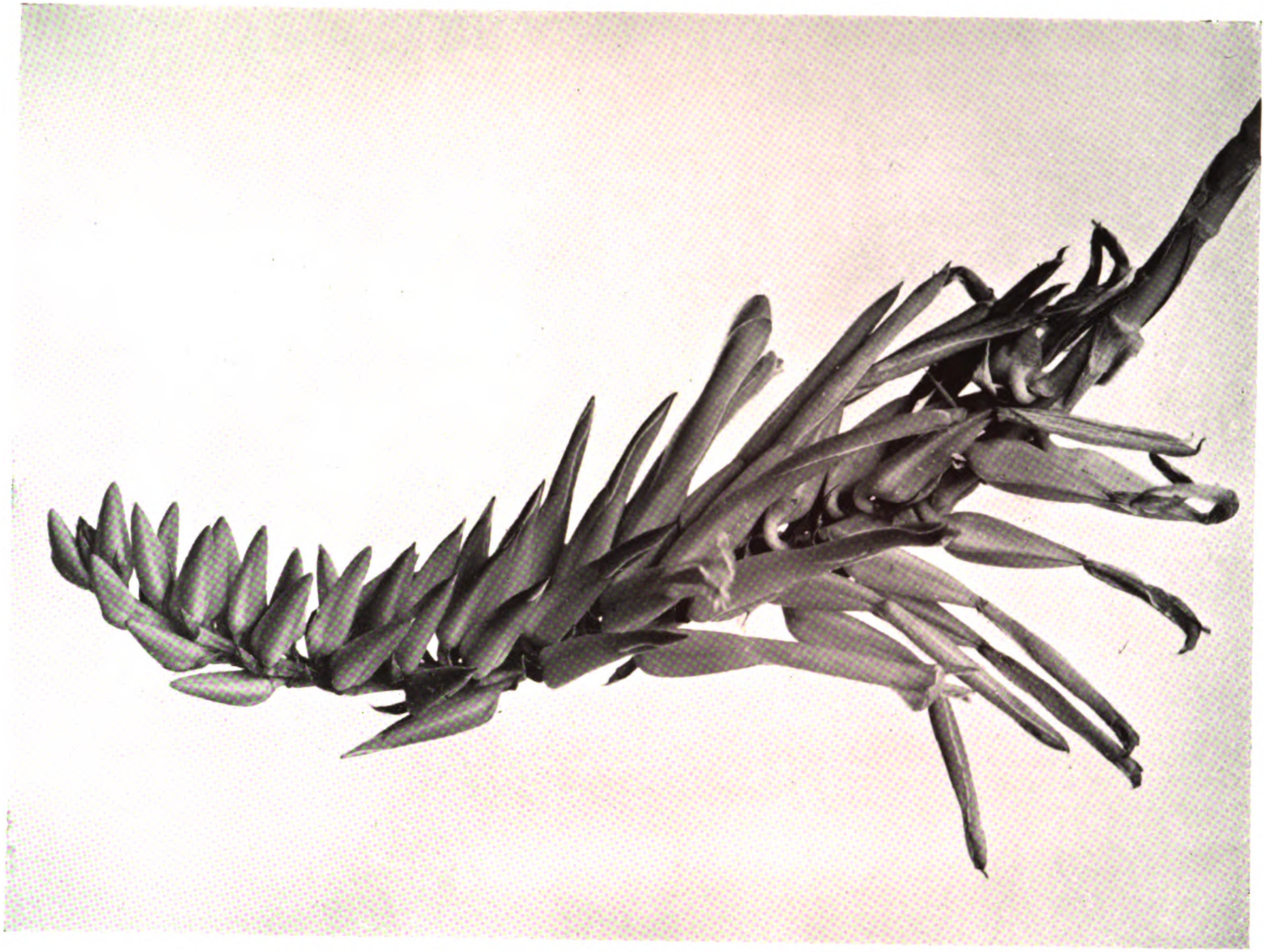
In his friendships, Collinson was singularly fortunate, for he managed to keep them all. Several members of the nobility, who were interested in planting their estates, received him with the warmest friendship; and for humble gardeners such as James Gordon, he would draw up little notes in his commonplace books full of praise for their skill in raising plants, stating that he does so as "an act of gratitude due to his memory from an old friend." His long employment of John Bartram as a collector of plants and seeds for himself and his friends was marked throughout by much kindness; and these two corresponded like brothers, although they had never met. In addition to paying for the collections made, he sent Bartram clothes, books, etc., and put him into communication with Sir Hans Sloane, Linnaeus, and others. His relations with Benjamin Franklin, dating from the time when he acted gratuitously as the London agent for the newly-founded Library of Philadelphia, showed his usual open-handed benevolence; and he was undoubtedly the means of turning Franklin's attention to his well-known researches into the nature of electricity.

Collinson did not publish very much. He contributed to the *Gentleman's Magazine*, and occasionally brought some investigation (sometimes not his own) to the notice of the Royal Society, of which he was a Fellow. He annotated his library, and was fond of collecting odds and ends of information in his commonplace books. He made a catalogue of his garden, but kept it in manuscript, though urged to publish it. Long after his death, it was found by L. W. Dillwyn, who rearranged it and published it as *Hortus Collinsonianus*, in 1843. Collinson's sympathies were extremely wide; and Major Brett-James points out in regard to his commonplace books, that they "show the breath of Collinson's interests, and the great number of people with whom he corresponded." His real contribution to horticulture consisted in the 171 new kinds of plants and trees he was able to introduce into English gardens; and a detailed list of these is given in the present work.

There are eighteen illustrations in this, the first full biography of Collinson, and it is somewhat to be regretted that they are for the most part but poorly produced. The portrait by Gainsborough, which serves as frontispiece, deserved to have been well reproduced, as it is here published for the first time; the original painting, offered for sale in 1907, cannot now be traced. Again, the small portrait of Linnaeus is unfortunately taken, not from one of the easily available good portraits, but from one which quite fails to bring before us his familiar features.

In spite of an occasional *lapsus calami*,

**The Life of Peter Collinson, F.R.S., F.S.A.* By Norman G. Brett-James. Published for the Author . . . and sold at The Friends' Bookshop, Endsleigh Gardens, London, price 15s. net.



PITCAIRNIA CORALLINA.

and the usual quota of printers' errors, this book is a very valuable addition to the biographies of the older horticulturists. It is full of good things, and a very thorough piece of work. Of the former, one cannot resist quoting Collinson's charming description of how a garden should be planted. "Everyone that would beautifully imitate nature should well consider the diversity and growth of trees, the size and shape of leaves, and the many shades of green. To know how properly to mix them in planting is another manner of painting with living pencils, for greens properly disposed throw in a mixture and contrast of lights and shades which wonderfully enliven the pictures, and which insensibly strike the senses with wonder and delight. The effects must be charming to see, the dark green Elm with the lighter shades of the Lime and Beech, or the yellowish green Planes with the silver-leafed Abele, the Chestnut, the Poplar, the Acacia, the Horse-Chestnut, *cum multis aliis*, when fanned by a gentle breeze, then how beautiful the contrast, how delightfully the lights and shades fall into diversity the sylvan scene."

The accompanying portrait (p. 46) from Nichol's *Literary Anecdotes*, although perhaps only a copy of Millet's engraving, is interesting on account of the sprig of Collinsonia at the base. *S. Savage.*

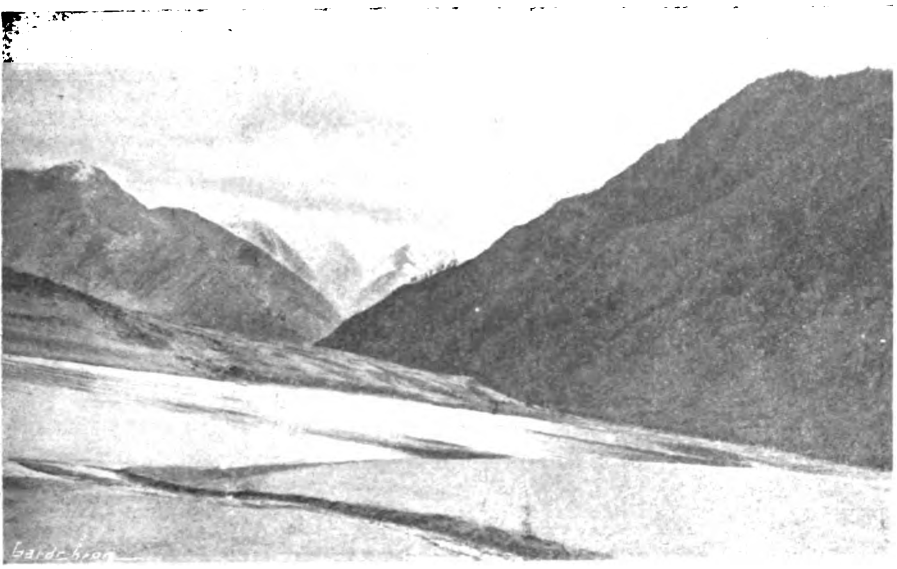


FIG. 23.—A WINTER VIEW OF THE TSANGPO, NEAR LHASA.

MR. F. KINGDON WARD'S EIGHTH EXPEDITION IN ASIA.*

XXIV.—Across the Tibetan Plateau.

On December 28, 1924, we finally started for India, following, at first, the road we had taken in August. But how different the conditions! Five months back it was raining continuously, and never did we see any of the high peaks. Now the sun shone brilliantly in a clear sky, and even from Tongkyuk we could clearly see the snow peaks of the trans-Tsangpo Himalaya.

A late start curtailed our march; and, indeed, what with the increasing cold as we approached the plateau, and early darkness, combined with a slight detour to explore a valley, it took us four days to cover ground which in August we had covered in two long marches. Meanwhile, I had collected seeds of that lovely Cyananthus to which reference has already been made—that was on December 30, certainly the latest date on which I have ever collected Cyananthus seeds. The form of the capsule, however, hinders the escape of the seeds, and so long as the whole plant is not snapped off and blown away, as happens in the case of C. incanus, growing on bare screes, there is no good reason why one should not collect it even later.

On December 31 we reached the Gompa, where we intended to halt for a day or two, in order to "fix" some snow peaks on the Salween divide. That very night the weather broke, and it began to snow fast, continuing all next day and the day after; meanwhile, the temperature, which had fallen to 14°F. on December 30, rose to 20°F.—or twelve degrees of frost, during the storm. Nevertheless, it is not to be supposed that we were either particularly warm or particularly cheerful, confined to a draughty, stone house, situated in that bleak alpine valley, up which the wind blew drearily.

Food now began to run short, so we decided that if the weather showed no sign of improvement we would cross the pass next day. On January 3, 1925, it was still snowing, so there was nothing for it but to abandon the project and march. Apart from the snow, we encountered no serious obstacle while crossing the pass, which is only about 14,000 feet high; and *en route* I collected seed of the ruby 'Sikkimensis' Primula. But when I attempted to reach the cliff where I had found 'Scarlet Runner' and 'Plum Warner' in bloom, I met with a rebuff. Not that there was any chance of getting seeds of these dwarf Rhododendrons, but I did hope to secure a few cuttings. The distance from the pass certainly did not exceed 300 yards; but the cliff faced north, and was very steep, indeed, precipitous, so that here the snow had drifted to impossible depths. After crossing the saddle, knee deep in snow, I quickly found myself floundering up to my waist, and an hour's struggle convinced me, not only that I should never reach the spot, but that I should never locate my plants, since every landmark was buried under one featureless quilt. So I reluctantly returned to the pass.

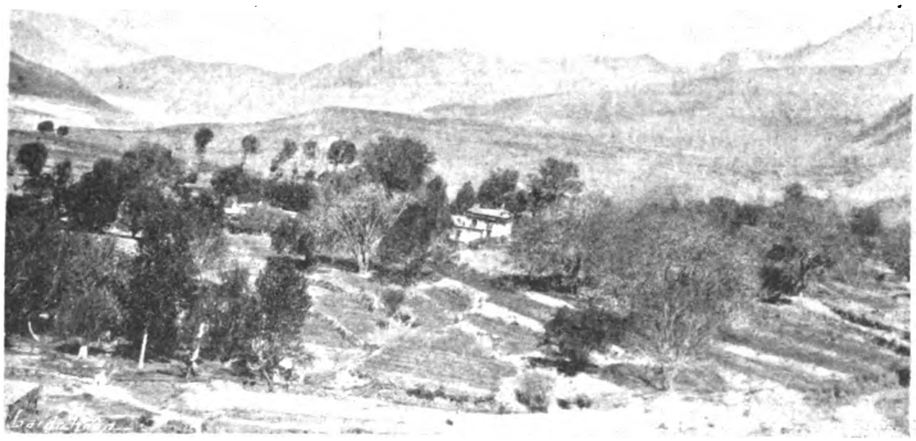


FIG. 24.—BIRTHPLACE OF THE PRESENT DALAI LAMA, WITH WALNUT AND OTHER TREES.

On January 5 we reached the Pasum Lake, and were at last out of the snow, though there was little improvement in the weather. It was our intention to cross the Salween divide as we had done in August; but after marching up the branch stream for three days to the last village, we learnt that the pass was closed. During this excursion I gathered seeds of the white and yellow 'Sikkimensis' Primula, which usually runs to two or three whorls of flowers, like a 'Candelabra'; it is probably only a form of the many-coloured one from Tumbatse. Selection should be able to do great things with this remarkable plant.

The weather now turned fine again, with clear nights, and we had further experience of really cold weather, the sheltered thermometer registering 39° of frost on more than one occasion. So we went down to the Gyamda river, and thence eastwards to the quite considerable town of that name, which we reached on January 18; and there, waiting for us was our mail, with the first news of the world beyond the mountains for three months. The weather was perfect, with an average of 20° of frost at night (under shelter) and no wind to speak of. There was no snow here.

The vegetation of the Gyamda valley is essentially scrub. Everything either pricks, like Ilex, Rosa, Berberis, Caragana, Sophora, Hippophaë, Elaeagnus, etc., or, if not actually beset with thorns, is twiggy and impenetrable. There are few herbaceous plants, and those reflect the prevailing dryness in their stout perennial root-stocks and long tap-roots—plant, like Salvia, Incarvillea, Senecio, Androsace, Gentiana, and the twining Codonopsis convolvulacea.

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* The previous articles by Mr. Kingdon Ward were published in our issues of April 12, May 17, June 21, August 9, August 30, September 27, November 1, 1924, April 4, May 9, June 6, June 20, July 4, July 18, August 1, August 15, September 5, September 19, October 10, October 24, November 21, December 5, December 19, 1925, and January 2, 1926.

Above Gyamda, continuous forest ceases, but there are still patches of Conifer forest on the higher slopes. Poplar, Willow, Birch and Rhododendron, found on the sheltered flanks of the valley, are all small and stunted; while the open flank is covered almost entirely with scrub Oak. Continuing northwards or westwards, tree growth quickly dwindles, and once over the Salween divide, not so much as a bush—save a few gnarled Junipers—is seen. The only species of Rhododendron met with by the river are the 'Taliense' and the purple 'Lapponicum,' but there are others higher up including the 'Anthopogon.' Much bare rock is exposed, and to anyone coming up from the Tsangpo gorge, the region conveys a general impression of sterility; approaching Lhasa from beyond the Salween divide, on the other hand, Gyamda appears quite a fertile district.

We now marched northwards for two days, again approaching, but not crossing the divide.

North of Gyamda a good deal of snow still lay under the bushes on the sheltered slopes, and even the Junipers looked brown and morose. The scene grew more and more melancholy, the Rhododendrons with leaves rolled into tubes and hanging straight down, the leafless thickets of Hippophaë, and the growing areas of grey rock. Sub-alpine plants now put in an appearance—Iris, Primula, Androsace Henryi, Meconopsis horridula. Then came Potentilla fruticosa, Spiraea laevigata and Clematis; and finally an alpine flora, of which, however, nothing was visible at this season.

On January 22, we returned to Gyamda, and on the 24th took the Lhasa road westwards, up the main stream. After crossing the pass, over 16,000 feet, which leads down to the Lhasa river, we emerged on to the barren gravel plateau, and once more had to be content with yak dung for fuel; yet so cold was it that even that, with all its drawbacks, was better than nothing. True, it embitters the food, and draws tears from one's eyes, but we could not do without a fire, and certainly it does give out a generous heat.

The day we crossed this pass was a long one, for we did not reach the summit till 4 p.m., and we did not reach our destination till two hours after dark. The most frightful storms of wind were screaming up the valley, and both men and ponies were sometimes quite unable to make headway against them, and were forced to seek shelter from their violence. When we did at last reach a village, a wretched place it proved, though we could not distinguish much that night. Two hovels and two tents comprised the entire place. There was no cultivation—in these bleak uplands the people are herds and nothing else. We saw the yak and sheep wandering out up the stony slopes on the following morning, nibbling the crisp herbage where they could find any.

We were quite unfortunate here, for there was only one air-tight room in the whole village, and that had, of course, been reserved for us. But a rude chieftain, coming from Lhasa, and bound for the other end of Tibet, had arrived in the place an hour or two before us, and installed himself in our room, deaf to the protestations of the inn keeper that it was a reserved compartment. Nor would he vacate when we arrived and complained, and as he had an escort of six stout rascals, well-armed, we deemed it the better part of valour not to try and throw him out, though we were very annoyed. He apologised profusely next day, and begged us not to report his conduct to Lhasa, since that might have meant cashiering but meanwhile we had spent a wretched night in another draughty, earthen-floored cell, and were in no temper to promise anything. However, we did not report the matter, as the consequences might have been altogether disproportionate to the crime, and contented ourselves with telling him our opinion of his behaviour. I think that was the only occasion on which we were ever treated discourteously in Tibet.

We were now within a week's journey of the capital once more, and at this point we turned due south, in order to reach the Tsangpo. Travelling up a wide, grassy valley, we reached the top of the pass in a few hours, after a very gradual ascent. The saddle-like summit was really a small plain occupied by a lake, now, of course, frozen over, but thawing in the sunshine. Hundreds of yak, carrying *tsamba* to that benighted province of Kam (in exchange for salt), were halting here, where there was a certain amount of pasture; and we found a good trail stamped over the ice, which was quite awkward in places.

After crossing the pass, we halted for lunch, out of the wind, and found it really quite pleasant in the bright sunshine; I even fell asleep, after the disappointments of the previous night. But, later, the wind blew with great violence, and the azure sky became gloomy with clouds.

After crossing more frozen marsh where the valley was a mile or so wide, we began to descend into the usual steep, stony valley, and found here a considerable bush growth, including 'Anthopogon' and 'Lapponicum' Rhododendron. I noticed also big spikes of the Incarvillea in fruit—some of them were thirty inches high and bore about fifteen sessile capsules. But I never saw this plant—or any other Incarvillea—in flower, though if it is a good colour the clustered spires of bloom must be a fine sight. I. lutea, however, from Szechuan is a rather wretched thing, with washy and uncertain yellow flowers; and I. lutea has just the appearance of this high Tibetan plant. Let us hope the flower colour is healthier.

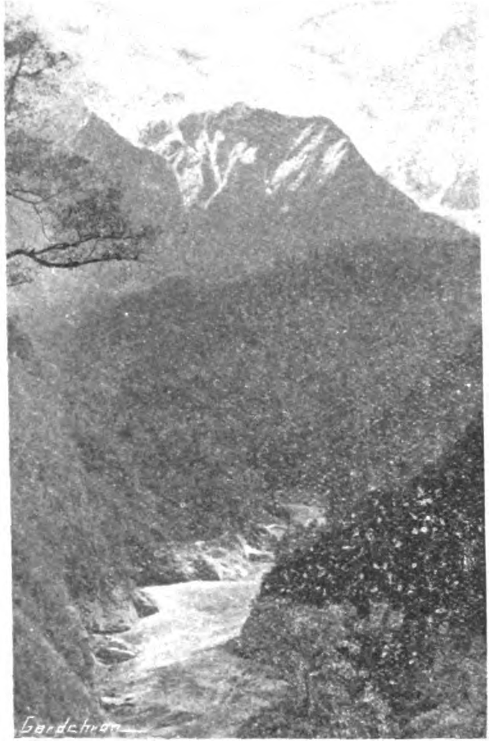

FIG. 25. IN THE TSANGPO GORGE.

We had hoped to get right down the valley to Oga Dzong, where we had been the previous April, this day; but night approaching when we were still some miles away, and the track being execrable, we halted at the first house we came to, situated a short distance from the road, up a side valley. Here, at any rate, we got some brushwood to burn again, and saw the big Cowslip 'Sikkimensis' Primula in fruit—it grows all the way down the Tsangpo valley, in favourable localities a thousand feet or so above the river, from this point (which is seventy miles east of Lhasa) to the entrance to the gorge; but nowhere does it flourish so well or grow so tall as in the *rong*, where we first met with it in flower. *F. Kingdon Ward.*

MESEMBRYANTHEMUM.

(Continued from page 30).

OOPHYTUM.

2. Oophytum, N. E. Br. Perennial, less than an inch high, tufted, succulent. Growths of small, ovoid (or under cultivation elongated-ovoid), soft and pulpy bodies, with a small fissure at the apex, having its lips closed or gaping. Flower solitary, partly or just exserted from the notch. Calyx produced above its union with the ovary into a short green (not membranous) tube, 6–7 lobed above. Corolla of numerous petals in 2–3 series, probably free, but in the withered flowers seen apparently united at the base into a very short tube, which may have been due to partial deliquescence and adhesion of the parts? Stamens many, erect. Style none; stigmas 6 or perhaps sometimes 5, filiform. Ovary half or more than half-superior, depressed and with 6 ridges on the top, 6-celled; placentas on the floor of the cells. Capsule with 6 valves and cells; each valve with its expanding-keels closely contiguous so as to form one stout, central keel distinct from the cell-partitions, and having broad, spreading membranous marginal wings, that are sometimes united in pairs between the valves; cells open, without cell-wings. Seeds several in each cell, small, compressed-ovoid, with a nipple at the narrow end.

Species 1, native of Van Rhynsdorp Division, South Africa.

The name is derived from the Greek, *oon*, an egg, and *phyton*, a plant, in allusion to the small egg-shaped growths of the plant as it grows under natural conditions.

I am unable to give a diagram of the floral structure of this genus, as the idea of making such diagrams did not occur to me on the only occasion I have had the opportunity of doing so.

O. oviforme, N. E. Br. Growths, as developed in South Africa, 4–6 lines high and 2–5 lines thick, becoming, under my cultivation, 6–9 lines high and 3–6 lines thick, ovoid, obovoid or cylindrical-ovoid, obtuse or very convex at the top, with an apical fissure-like orifice 1–2½ lines long: rather soft in substance; surface glabrous, thickly covered with minute pimples or raised dots as seen under a lens, green (not glaucous-green), with the dots or pimples darker and slightly shining; sheaths soft, pale brown. Flower just exserted from or the calyx included within the orifice. Calyx globose, 6–7-lobed, green: tube 1½–2 lines long, including the part adnate to the ovary; lobes 1–3 lines long and ¾–1 line broad, oblong, obtuse. Corolla 6–9 lines in diameter: petals numerous, in 2–3 series, 3–5 lines long, ⅙–½ line broad, linear, obtuse, stated to be rosy or pale magenta, but in the withered flowers seen are apparently whitish. Stamens numerous, 1–1¼ line long, erect. Stigmas 6, erect, about 1–1½ line long, filiform. Ovary half or more than half-superior, depressed and with six ridges on the top, 6-celled. Capsule 2–3 lines in diameter, somewhat depressed-subglobose, with 6 gaping double and somewhat wing-like ridges on the top, and with 6 valves and cells, when expanded about 5½–6 lines in diameter; valves reflexed when expanded, pallid, each with an orange-coloured central expanding-keel as long as the valve and pallid broad elliptic or subrectangular membranous marginal-wings; cells open, without or with only rudimentary cell-wings. Seeds 15–20 in a cell, ¼ line long, ovoid, with a nipple at the narrow end, smooth, light brown.—Mesembryanthemum oviforme, N. E. Br. in *Journ. Linn. Soc.* v. 45, p. 95 (July 1920). Conophytum oviforme, N. E. Br. in *The Gardeners' Chronicle*, 1921, v. LXX, p. 207, fig. 84, I-L, and v. LXXI, p. 231, fig. 123.

Van Rhynsdorp Division: In the Hardeveld, Marloth!; region of Van Rhynsdorp, Mrs. E. Rood!

An examination of more complete material than I had when I first described this plant demonstrates that the structure of the flower and fruit is quite different from that of Conophytum, as is also its mode of growth in the seedling and adult stages. In its seedling stage the cotyledonary body is smooth, but the first growth instead of merely replacing the cotyledonary body as in Conophytum is protruded much above it and is minutely papulose on the upper part and smooth at the basal part. It is translucent, especially at the smooth basal part, and contains air-cells inside, which glisten slightly when viewed with a lens. In the adult plant the growths develop out of one another so as to appear somewhat superposed until the old growth withers to a mere skin. This is a very different mode of growth from that of Conophytum, in which the successive growths merely replace each other, and so far as I have seen no species of Conophytum is at all papulose.

I have not seen a perfectly fresh flower, only two limp withered flowers that may have developed during their journey from South Africa, so that I am uncertain whether the petals are really free or whether in the process of withering they had clung together at the base so as to form a very short tube.

N.B.—The plant described as Mesembrythemum nanum by Schlachter, from the description and from the dried specimens I have seen of it, would appear to have somewhat the same general appearance as O. oviforme, but the single flower seen seems to be quite different, being very much smaller and on a slender exserted pedicel. However, the specimens are so badly pressed that it is quite impossible to determine the true structure and appearance of the plant, which I suspect belongs to some other genus. *N. E. Brown.*

(*To be continued*).

FORESTRY.

(*Continued from page* 32).

Owing to its great elevation above the horizon the sun's heat within the tropics is very much greater than it is at any other part of the earth's surface. As a consequence of this, wherever the conditions are sufficiently humid, we have in the tropical zone the most luxuriant vegetation on the face of the globe, although the tallest non-climbing, ligneous plants are not found there. For these we must go to more northerly and more southerly latitudes—to the forest regions of Western North America and of South Australia, where the tallest trees in the world are found.

The following table, from Dr. Julius Hann's *Handbook of Climatology,*[*] gives, in Bunsen-Roscoe units,[†] the relative chemical intensities of the light received directly from the sun and reflected from the sky upon a horizontal surface during a whole day at the spring equinox in the northern hemisphere:—

	Latitude.	From Sun.	From Sky.	Total
Pole	90°	0	20	20
Melville Island ...	75	12	106	118
Rejkjavik (Iceland) ...	64	60	150	210
Leningrad (Russia) ...	60	89	164	253
Manchester (England)	53	145	182	327
Heidelberg (Germany)	49	182	191	373
Naples (Italy)	41	266	206	472
Cairo (Egypt)	30	364	217	581
Bombay (India) ...	19	438	223	661
San Jose (Costa Rica)	10	475	226	701
Quito (Ecuador) ...	0	489	227	716

From this table it will be observed that there is a progressive diminution in the chemical intensity of the sunlight from the equator to the pole, but that in the tropical zone the rate at which it diminishes is comparatively slight, amounting to but ninety Bunsen-Roscoe units or thereby less at the tropic (23½° N.) than it is at the equator, or less than one-eighth of the total decrease for approximately one-fourth of the distance from the equator to the pole. It will also be observed that at approximately the 48th parallel of latitude the chemical intensities of the direct rays from the sun and of the light reflected from the sky are approximately equal, and, of course, to the north of this parallel the intensity of the light reflected from the sky is greater than that of the light received directly from the sun. This is the position as regards the intensity of the sun's rays at the spring equinox in the northern hemisphere, when day and night are equal over the whole of the earth's surface, and, instead of being tilted at an angle of approximately 23½°, were the earth's axis vertical to the plane of the ecliptic it would be the position throughout the whole year all over the globe. There would be no seasonal changes, no variation in the length of the day or night, no seasonal cessation of plant growth during any part of the year anywhere on the earth's surface. Under present conditions, however, as the earth moves in its orbit the position of its axis is constantly changing in relation to the sun, and of course the length of the day, and of the night, varies from latitude to latitude in the course of its journey. Within the tropics the variation is so slight as to be practically negligible, and plant growth, except through interruptions brought about by other than direct astronomical agencies, such as drought, etc., is continuous throughout the year. But as we go polewards from the northern and southern tropics (23½° N. and S.), which mark the limits of the sun's path north and south of the equator, after the spring equinox is passed the difference between the length of the day and that of the night becomes more and more accentuated until, when the arctic and antarctic circles respectively are reached, the distinctions between day and night disappear altogether for a short time at the summer solstice. At the poles the sun is a circumpolar star from equinox to equinox, and there is no night there for one half of the year, and of course for the other half of the year there is no day. These seasonal changes have, as is well known, a very marked influence on plant growth. Within the tropics it is practically continuous throughout the year, but at the extreme northern and southern limits of plant life the vegetative season is compressed into a period of but a few weeks duration. But at the middle of this short season of active growth at these extreme latitudes the daily duration of sunlight received by plants, although less intense, is immensely greater than it is anywhere, or any season, within the tropical zone for a corresponding period of time. *A. D. Richardson.*

(*To be continued.*)

ORIGIN, EARLY HISTORY AND DEVELOPMENT OF THE POTATO.

Most people, if asked the question, "Who introduced the Potato into Great Britain?" would probably reply, "Sir Walter Raleigh," and certainly they would be warranted in so doing by the sanction of long-standing tradition. Even a superficial study of the history of the Potato in this country, however, will reveal the fact that this opinion is based on very inconclusive evidence, and in this article an attempt will be made to sift the various theories regarding the origin of the Potato and its introduction into Europe, and to arrive, if possible, at a solution of the problem.

Origin.

There appear to be several schools of opinion concerning the locality in which the Potato originally grew in a wild state. A great many authorities claim Chili, and others Peru as its original home. Krichauff[*] states that the Potato has been found wild in Mexico. Wight,[†] who made exhaustive enquiry into the matter and a critical examination of material in American and European herbaria, and who, for the purpose of gaining first-hand information on the subject, made a trip through Chili, Peru, Bolivia and Ecuador, has expressed the opinion that there is no evidence of a single specimen of the Potato (Solanum tuberosum), having been collected in an undoubtedly wild state, or that the species is now growing anywhere in its original indigenous condition. It is thus practically impossible to fix the original habitat with any certainty; the probabilities are, however, that the Potato is native to the district embraced by the following countries:—Peru, Ecuador, Bolivia and North Chili. W. E. Safford, in a recent article[*], describes how along the arid desert which forms the Pacific coast of Peru and North Chili there is a succession of cemeteries in which mummies are found, accompanied not only by desiccated plants, but also by funeral vases of terra-cotta, some of which represent food stables and fruits of the ancient inhabitants. Dried Potatos were found by Safford in graves at Arica on the coast of North Chili. Funeral vases representing Potatos have been found in abundance in graves in northern Peru.

Some authorities, including Labergerie, Heckel, Planchon and Verne, claim to have found the ancestors of the cultivated Potato.[†] Since 1904 these gentlemen have worked with wild species of Solanum, and are of opinion that these species, especially Solanum Commersonii and Solanum Maglia, can give rise to the common Potato, Solanum tuberosum, by simple mutation. This theory, which may have had its origin in the use of impure material, is certainly not confirmed by the experience of a very large number of botanists and growers including Sutton, Berthault, Baker, Wittmack and Stuart.

Early History.

The first definite mention of the Potato in literature is that given in Cieca's *Cronica de Peru,*[†] published in Seville, 1553.[§] Cieca sailed with an expedition from Spain to Carthagena, where he landed in 1533. He began to record his experiences in a diary during 1541. From his diary it is evident that the Potato, or "Papas," as it was called by the natives, was grown to a considerable extent throughout those regions through which he travelled. It is clear also that the plant had been cultivated for some time prior to his visit. The country traversed by Cieca extends from the southern portion of what is known as Colombia to the region of Lake Titicaca. Reference is also made to "Papas" by Joseph D'Acosta, whose work was published in Seville in 1590, and by Garsilasso de la Vega, who was brought up in South America, and whose writings appeared in Lisbon during the year 1604.[‖]

There are many stories concerning the introduction of the Potato into the Old World, and owing to the lack of exact historical record, it is very difficult to separate the truth from fiction. Two separate modes of entry have been suggested, viz., (*a*) by the Spaniards, and (*b*) by the English. That there were two introductions may be inferred from the fact that the original English Potato had yellow tubers and light violet flowers, whereas the tubers of the European plant were red and the flowers violet. The Spanish conquest of Peru by Pizarro took place between 1531 and 1541. The first appearance of the Spaniards in Peru, however, dates back to 1526. The probabilities are strongly in favour of the introduction occurring towards the end of that period, or what is more likely, after it, and not at its beginning. The selection of the later date is based on the assumption that the plant could scarcely have escaped the notice of European botanists of that time for any considerable period. *T. P. McIntosh.*

(*To be continued*).

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[*] English Edition, New York, 1903.

[†] A Bunsen-Roscoe unit of chemical light intensity is the amount of light required to produce a standard colour in one second on standardised sensitive paper.

[*] *Journal Roy. Hort. Soc.* Nov., 1895, Vol. XIX.

[†] Wight, W. F., 1917. "Origin, Introduction and Primitive Culture of the Potato," quoted in *The Potato* by W. Stuart.

[*] Safford, W. E., "The Potato of Romance and Reality. *Jr. of Heredity*, 1925.

[†] *Encyclopædia Agricole.* H. Hitier, Paris, 1910. "Plantes Sarclées. Pomme de Terre."

[‡] *Encyclopaedia Britannica*, 11th Edition.

[§] Stuart, *The Potato*, 1923.

[‖] W. S. Mitchell, "Origin of the Potato." *The Gardeners' Chronicle*, 1886.

MARKET FRUIT GARDEN.

THE first part of December was dry and very cold, but in the last fortnight rain fell on every day, bringing the total amount for the month up to 4.94 inches, which is considerably over the average. The rainfall for the year at my place amounted to 36.16 inches, which fell on 162 days, making 1925 the third of a series of very wet years, although it was slightly the driest of the three. March, June, August and September were the only months in which the precipitation was under the average. Fortunately, however, 1925 was a more profitable year than either of its two predecessors. Owing almost entirely to the heavy crop of Apples, there is a balance on the right side, though not a very brilliant one. Considering that Plums, Black Currants and Cob-nuts were very light crops, and that the market for Apples was in a depressed state almost throughout the year, the result is satisfactory.

A COSTLY DISEASE.

Now that the complete figures relating to my crop of Apples are available, I find that it was heavier than the crops of the two previous years put together. It fell a little short of the heavy yield of 1922; but I am surprised to find that, in spite of the fact that the quality of the fruit was decidedly inferior (1922 was a scab-free year with me), the total return was only about £200 less. As the general level of prices has certainly tended to fall since that year, the result can only be attributed to improved methods of packing and marketing. The utmost care was taken throughout the packing season in grading and making the most of the scabby samples of Apples. By selecting the clean fruits only for the best market, and finding a satisfactory outlet for the large proportion of rough fruits, returns were kept at a fairly satisfactory level. These remarks refer to dessert varieties only. Cooking varieties were of excellent quality; and I consider that mid-season sorts sold rather better than usual, owing, no doubt, to the shortage of Plums. Late sorts, on the contrary, were cheap.

In all the most valuable dessert varieties, with the single exception of Charles Ross, the proportion of fruit which had to be sold cheap because of scab was appalling. Had I been more successful in controlling this disease, I do not doubt that my profit on the year would have been increased by at least £400. What the loss must be, taking the country as a whole, can hardly be imagined. Yet no effort on an adequate scale is being made to discover more effective methods of control. Preventive spraying methods have been standardised for most of our overseas competitors, with the result that they are able to put clean fruit on our markets every year. I sprayed twice with Bordeaux mixture, and no doubt did some good, but nothing like enough; and the worst of it is that I am in very little better position for renewing the attempt this year. I can only experiment with earlier spraying.

I have been trying to trace some connection between the weather and the severity of scab. The only point which seems to stand out is the effect of a dry May in preventing the disease. In recent years the only seasons quite free from scab in my district were 1919 and 1922, and in both cases Apple blossom was expanded in May, when the weather was very dry. In May, 1919, only 0.25 inches of rain fell, and in May, 1922, only 0.56 inches, both months being sunny and warm. I had a good deal of scab in 1921, although it was a dry year throughout, every month having under the average rainfall; but May of that year, with 1.33 inches of rain, was not so dry as the same month in the two scab-free years mentioned. I cannot trace any definite connection between scab and the weather of the previous year. It is true that 1922 was preceded by a drought in 1921; but 1919 followed a year of over average rainfall, and the first four months of 1919 itself were all above the average for rain. Adequate protection during May is what we seem to want, and this is impossible to secure with our present spraying fluids when there is much rain to wash them off the trees.

BUSH FRUIT CULTURE.

I recently paid a visit to a grower who specialises in the culture of bush fruits, particularly large dessert Gooseberries. Incidentally, I found him grubbing some fine big trees of Lane's Prince Albert and other cooking varieties of Apples. He said he would rather grow Potatos which he could sell at 4/- a bushel, than Apples to dispose of at 6/- for the best grade. With regard to the bush fruits, which were seen in excellent order, the point which struck me most was that no digging, not even shallow forking, is tolerated in the actual rows of bushes. The weeds are scraped off with hoes into the alleys between the rows, there to be dug in deeply. Under Gooseberries and amongst Raspberries they are even pulled out by hand by women. As the digging proceeds some clean soil is thrown up to the bushes to replace that hoed away. Manure, particularly farmyard or town stable manure, is used very liberally. Great keenness is displayed in the finding of varieties which best suit the district, no doubt a most important point in the culture of bush fruits.

OVERCROWDED TREES.

I had contemplated doing a great deal of grubbing this winter to thin out trees which were planted too closely together some twenty years ago, and which are now decidedly overcrowded; but the cropping results of the past season have caused me to pause. The worst case is a block of Bramley's Seedling on the free stock, planted only twelve feet apart each way. These, of course, meet on all sides. Yet they have borne heavy crops for two years in succession; and last season the fruit was the finest I had of this variety, although there are blocks of Bramley's Seedling in all my plantations. So long as results are satisfactory it is generally best to leave well alone. The effect of thinning out often seems to be unfavourable to the surviving trees for a few years, probably because it cannot be done without a good deal of disturbance to their roots. I have found this to be the case even where old Black Currants have been cleared from amongst Apples, which appeared to need all the room. The trees have taken a year or two to recover from the disturbance.

I am all in favour of giving fruit trees plenty of space; but this is a matter which is apparently best provided for at planting time. We must intercrop with bush fruits in many cases, but these can be removed when their time is up with less disturbance than large trees.

Last year I grubbed alternate rows of a block of fine old trees of Beauty of Bath. The effect was most pleasing to the eye; but the trees carried a crop of the worst quality I have ever known them bear, although other blocks of this variety did well. There was nothing to account for it except the grubbing. The only alternative to grubbing is rather severe heading back. This I have never tried, as I imagine that it might defeat its own end by causing a lot of strong growth. It seems to be done in America, however, where it is called "de-horning." The method is to prune back to lateral branches, which thus take the place of the original leading branches. I intend to give the plan a trial.

UNRIPE WOOD.

Apple trees have much unripe wood. The tips of the leading shoots on young and medium-aged trees are decidedly green, and the leaves hung on them right into December, having turned an unnatural shade of brown. How they managed to stop on through all the frost and snow, and what else was wanted to make them fall, remain mysteries. I noticed these unripe shoots particularly when pruning trees of Blenheim Pippin planted seven years ago. The orthodox treatment, no doubt, would have been to cut off the unripened tips, and some gardeners would not think twice about retaining them. But I did not want to tip the leaders of this variety, and so delay still further its coming into bearing, always a slow business with Blenheim Pippin; therefore, I left the shoots their full length. What harm can result? I feel certain that these shoots will extend and behave next season just the same as if their tips had been properly ripened. In countries where fruit trees are subject to winter injury it would be a different matter. Another curious feature of this winter is that rabbits are doing no harm to fruit trees, in spite of the unusually severe weather. I have known them to do much damage in quite mild winters; so there is apparently no connection between rabbit trouble and the weather.

SUCCESS FOR SUMMER PRUNING.

Writing in the *Journal of the Ministry of Agriculture* for December, Mr. H. Goude, Horticultural Superintendent to the Norfolk County Council, whose work is always worthy of attention, records remarkable success in bringing young Apples into bearing by means of a method of summer pruning which he has adapted to some extent from the Lorette system. Illustrations from photographs show that the trees carried quite good crops in the third season after planting, although they were planted as maidens worked on the Crab stock. This has been done without any stunting, for the trees are well-furnished specimens with plenty of young shoots. Mr. Goude states that he has obtained similar results on the demonstration plots at Burlingham with most of the commercial varieties of Apples.

The method, briefly, is to pinch at the fourth or fifth leaf all shoots not required as leaders. The result of this pinching is to cause the bud in the axil of the top leaf to develop into a shoot, which is then rubbed out. In consequence two buds develop, one on each side of the scar thus formed. Many of these grow into weak shoots, which are rubbed out, but many develop into blossom buds the first season, and carry fruit the next year. The leaders are allowed to extend unchecked during the summer.

Winter pruning consists in merely shortening the leaders, if required, and making long spurs of any side shoots which have failed to develop blossom buds as a result of the summer pinching. It will be seen that this method differs from the usual system of summer pinching practised in gardens, in that the secondary growths are rubbed right out instead of being merely pinched back, and there is no further shortening of the laterals in winter except where they have failed to make blossom buds. Mr. Goude states that the system may be practised on older trees, every shoot being pinched at the fourth leaf, including the leaders, if no further extension is required. *Market Grower.*

FRUIT REGISTER.

APPLE TOM PUTT.

THIS Apple is a great favourite in the West of England, and is excellent for orchard planting. It is a good and constant bearer, thriving on the Crab stock, is an excellent culinary fruit, and is not to be despised for table use.

Well-coloured samples are exceedingly handsome; the flesh is soft with abundant juice, and the flavour is quite good. The variety is in season during October and November, and is undoubtedly a good orchard Apple; it is very useful as a cider fruit. *Ralph E. Arnold.*

APPLE PAROQUET.

THIS fine late dessert Apple was raised by Mr. Charles Ross, of Welford Park Gardens, from Peasgood's Nonesuch crossed with Cox's Orange Pippin, and distributed by Messrs. J. Cheal and Sons, of Crawley, in 1902, who described it in their catalogue of that year as "One of the most highly-coloured dessert Apples yet introduced; the fruit is of medium size, conical, eye closed in a shallow basin, stalk short, skin nearly covered with the deepest red, flesh white and of excellent flavour; good keeper, coming into use in December and January." The variety received an Award of Merit at the R.H.S. meeting in October, 1899. I purchased a standard tree in 1902 which has grown into a large specimen with a somewhat spreading habit, and is a constant bearer. The fruits are of a suitable size for dessert. This highly coloured Apple is too seldom seen on the exhibition table. *G. J. Warren, Balcombe, Sussex.*

[Accompanying Mr. Warren's letter were some excellent fruits of this showy and useful variety.—EDS.]

HOME CORRESPONDENCE.

Winter Thunderstorms.—I intend to continue, in conjunction with the Meteorological Office, the annual record of winter thunderstorms. I shall, therefore, be very glad to receive reports of thunderstorms observed by readers of *The Gardeners' Chronicle* in any part of the British Islands, between January 1 and March 31, 1926, inclusive. A note on a post card of the date and time of the observation of thunder or lightning, with the direction in which the lightning was seen, especially at night, will be very valuable. Any additional information of the following character will be extremely welcome:—(1) The time when the storm passed overhead or was nearest, with its direction, and how long it lasted; (2) an estimate of the severity of the storm; (3) whether it was accompanied by rain, hail or snow; (4) direction and strength of wind; change of wind, if any; (5) whether there was a change in temperature during the storm; (6) any other observation which may be of particular moment. It is particularly asked that the position of the place of observation should be indicated by mentioning the distance and direction from the nearest town. A note that no thunder or lightning has been observed during the period will be useful. *S. Morris Bower, Langley Terrace, Oakes, Huddersfield. December 21st,* 1925.

Perpetual-flowering Carnations.—I read with interest Mr. Grigor Roy's remarks on p. 501, vol. LXXVIII, in answer to Mr. Allwood's note on Perpetual-flowering Carnations. I have grown this type of Carnation for some years past and have never had any difficulty in raising good, healthy plants from very poor stock. This does not imply that one should make a practise of propagating from inferior stock, but only serves to show what can and has been done. I have seen very poor plants that have been sent from some of our leading Carnation growers, which again shows that we are very little better off when buying from them than we are by obtaining cuttings from our gardener friends. Much has been written from time to time on the coddling of Carnations, but I have very healthy plants that do well in a temperature of not less than 60 during very cold weather, although I know this is against all rules of Perpetual-Carnation growing. All my plants are free from disease. I often wonder why, under proper management, some gardeners' plants are troubled with red spider, as this pest is not difficult to keep down, at least, so I find. I always syringe the plants summer and winter, with salt water, which must certainly seem drastic to some growers of this plant. Although the temperature in which my plants are grown may seem high, it, of course, varies. I fail to see why Carnations should not do well in a high temperature and be free from disease if given a fair amount of air and light. On the contrary, I have seen very healthy plants that have passed through the winter with little or no fire-heat, but one can hardly call them Perpetual-flowering, as in this low-temperature they just about reach bud stage, but seldom open their blooms until warmer days. Indeed, very few plants flower without fire-heat during the winter. I have written this to show that, by quite diverse ways, one may obtain, and keep, healthy stock. *H. Howard Grace, Newton Park Gardens, Bristol.*

Problems of Fruiting.—I agree with Mr. Weston (p. 392, vol. LXXVIII,) that we are able to do very little to influence the cropping of fruit trees in the open once they have grown to full bearing age. This is proved by the fact that crops vary little over a wide district in any particular year. In the early summer of the last two years I have visited a number of fruit farms in certain districts and have found prospects about the same in all, although the grower's methods vary considerably. This extends even to certain varieties. We get Lane's Prince Albert years, for instance, when there are heavy crops of this variety in practically every orchard over a wide district, or even throughout the country. In seasons when frost or other unfavourable weather conditions do damage at blooming time, there is more variation in the crops, because the situation of the orchard then has its influence; but it is very seldom that one can trace the influence of any treatment on the cropping. Claims that this has been done have often been made, but without satisfactory proof. If control trees were left when any special treatment was given it would generally be found that results were negative. In the case of Cherries it is always the weather at blooming time that influences the crop, as they bloom every year; but Apples have a marked alternate-year bearing habit; and no one has so far been able to prove sarisfactorily that he has overcome this. The only way to get a crop every year seems to be to have trees of various ages, so that their "off" years are not the same in all cases. I do not mean to imply that good culture does not pay. It is an easy matter, for instance, to lose the crops of two seasons by neglecting to control a severe attack of some insect pest. But, provided the trees have ordinary good treatment, and that they are not starved, we find, much to our annoyance, that our crop prospects are much the same as those of our neighbours every year. *Market Grower.*

Aralia cordata.—This plant, called Udo by the Japanese, grows wild in hilly regions of Japan. It is extensively cultivated in improved forms both winter and spring, as a market crop. Outside Japan it is little known although it has been introduced by Dr. D. G. Fairchild, of the United States Ministry of Agriculture, into that country. It is hardy in most parts of England, and may be grown and blanched like Rhubarb. Forced like Seakale and Chicory, the young shoots provide a delectable vegetable which, served *à la crème*, is so tender that it may be cut by a paper-knife, whilst its ivory-white colour and delicate flavour afford an escape from the ubiquitus Brussels Sprout. *W. Lawrence, Burford Lodge, Dorking.*

The late Mr. S. B. Dicks.—Many readers of *The Gardeners Chronicle* will, like myself, miss with much regret the interesting and knowledgeable articles on vegetables so ably written by the late Mr. Dicks. It is obvious that this gentleman had taken every opportunity of his travels and concentrated his powers of observation in obtaining knowledge of vegetables in many countries where their uses are much more widely known than in our own. In his last article on Scorzonera, a vegetable little grown in this country, his suggestion that the cause of this vegetable being overshadowed by its congener, Salsify, is not necessarily due to the superior merit of the latter, is very much to the point, and shows an intimate knowledge of both vegetables. That the successful cultivation of Salsify offers less difficulties than that of Scorzonera is probably true, and will account for the former being more widely grown. Well-grown roots of the latter are, however, at all times equal to the best Salsify, and, as Mr. Dicks pointed out, much superior when they are required for late use in the season. I have always been very keen to make the acquaintance of plants which furnish suitable material for the mixed salad bowl, but previous to Mr. Dicks's information I did not realise that the leaves of Scorzonera could be included. *W. Auton.*

SOCIETIES.

ROYAL SCOTTISH ARBORICULTURAL.

ABERDEEN BRANCH.

THE annual meeting of this branch was held recently. Mr. Charles S. France, the retiring president, occupied the chair.

The annual report and accounts were submitted by the secretary and treasurer, Mr. George D. Massie, advocate, Aberdeen. The report, the twentieth of the branch, gave the membership as 173. The financial statement showed a total balance to the credit of the funds of £33 19s. 11d. Both reports were regarded as satisfactory and unanimously adopted.

The chairman intimated his intention not to continue in office as president for the usual period of three years. He nominated as his successor Mr. John Michie, M.V.O., Kincairn, near Aberdeen, one of the original members of the branch, and a vice-president since it was initiated. Mr. Michie occupied the high and honourable position of forester and factor on the Royal estates at Balmoral under Queen Victoria, King Edward VII and King George.

Mr. Michie, accepting office, said he had been associated with the parent society since 1881, and had participated in the management of its affairs, more of less, ever since. He had taken a part in such work during a time when forestry was only taken up by very few indeed.

Other appointments of office bearers were made as follow:—Vice-presidents: Lord Forbes, Castle Forbes; Captain R. J. Nicoll, of Ballogie, Aboyne; Mr. Donald Munro, O.B.E., Banchory; and Mr. S. J. Gammell, of Counteswells. In place of Lord Forbes, Mr. C. S. France was added to the committee. To that body Mr. James S. Davidson, Cairnlea, Aberdeenshire, and Mr. J. F. Annand, of the Forestry Commission (Aberdeen District) were re-elected. In place of Sir J. D. Ramsay, Bt., H.M. Commissioner at Balmoral, Mr. Edwards, forester, Balmoral, was chosen, and Dr. Watt, Forestry Department, Aberdeen University, was elected in the place of Mr. Peter Leslie, M.A., B.Sc., Aberdeen University. Mr. Edwin C. Duthie, of Messrs. Ben Reid and Co., Aberdeen, and Mr. S. J. Gammell were appointed representatives to the parent society in Edinburgh. Mr. George D. Massie was re-appointed secretary and treasurer.

Intimation was made of the gifting to the branch library of a number of interesting pamphlets and books on forestry by Mr. S. J. Gammell, and also reports and bulletins from Mr. C. E. Leggat, of the Forest Department of the Union of South Africa, Pretoria.

After the general business was concluded, the members were entertained by a very instructive address on "Peat Planting," by Mr. Ernest V. Laing, M.A., B.Sc. (Forestry), of the Forestry Department, Aberdeen University. Peat, in Scotland, said Mr. Laing, was mainly of the high moor type, characterised by high water content and low air content, poor nutritive value,—although the ash analysis usually showed sufficient food material for tree growth, and high degree of acidity. To bring the peat into anything like fertility the excess of water had to be removed. Were this done successfully, the other hostile factor would automatically disappear. Drainage, unfortunately, in regions of high rainfall, such as the west of Scotland, was often ineffective, but drainage effected might be intensified by turf planting. The operation might be successful in itself, but greater success might be achieved by the application of manure to the turf. Invariably the manure used had been basic slag, owing to the success met with by its use on the Continent, and because it supplied lime and phosphate, of which high moor peat was markedly deficient. Soil in all cases increased the value of the fertiliser. It was suggested that other manures might give greater success. The first practical point was the minimum amount of manure which would give the necessary stimulus to growth. This amount would vary with different peats—it might vary from one to four ounces or more of slag per tree The second point was that, to permit of complete aeration, the drained part must be left unplanted for at least one year.

In all instances success to a great extent would depend on the species of tree used, the protection afforded to the tree, the thorough cleaning of the land from weeds, such as Bracken or grasses, and the careful treatment and planting of the tree in order to make it as vigorous as possible. The three principal trees used in planting peat were Scots Pine, Norway Spruce and Sitka Spruce. .Scots Pine was the most suitable tree for eastern peat lands. The Spruces, particularly Sitka Spruce, were more adapted for peat regions of high rainfall, such as he west of Scotland..

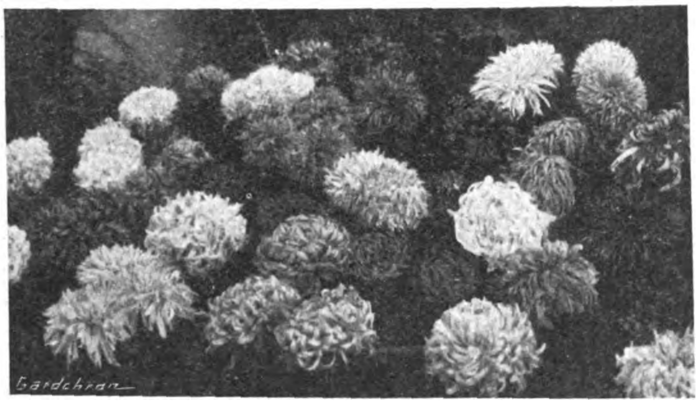

FIG. 26.—CHRYSANTHEMUMS AT MYSORE SHOW.

MYSORE HORTICULTURAL.

I **SEND** a somewhat belated account of our summer show which was held on August 8. 1925. The exhibition was fully up to the usual high standard and proved a great success. The exhibits of foliage plants, perennials and annuals in pots showed good cultivation, and the various prizes were keenly competed for. Roses (Fig. 27) were not so good as those exhibited at the previous shows, but Dahlias and Chrysanthemums (Fig. 26) stood out distinctly with their splendid blooms in many new varieties. Fruits (Fig. 28) and vegetables were of good quality, though not present in such large quantities as usual. In the cut flower section there was keen competition among the general collections and in floral arrangements. There were numerous and effective exhibits of table decorations, vases, baskets and bouquets. An innovation of great public interest consisted of a special section of horticultural scientific work developed in the Government Botanic Garden in recent years. The exhibits were arranged in a separate tent under different sections. Under "Plant Diseases," coloured drawings of plant lice, scale insects, Orange borers, Grape vine mildew, and the full life history of the woolly aphis—which has done so much damage in the Apple orchards—were shown. The use of various sprays and insecticides, as well as chemicals used in combating the diseases, were demonstrated.

Among the newly-introduced horticultural implements were shown seed-testing apparatus, seed-sowers, soil-testers, seed-samplers, and various tools such as cultivators, secateurs, etc.

In another section, the following seeds and plants of economic importance were exhibited :—Green Manures : Clovers, Velvet Beans, Crotolarias, etc., and Fodders : Bokhara Clover, Lucerne, Sunflower, Salt Bush, Napier Grass and Rhodes Grass. An entirely new strain of Befri evolved on the Sunkal Horticultural Farm was also shown. This is said to have double the nutritive value of Wheat..

Of industrial plants yielding fibres, rubbers, oils, drugs, etc., very large numbers were shown, together with samples of the products derived from them. I can only mention a few, such as Sisal Hemp, Silk Cotton, Camphor, Styrax, Balsam, Annatto, Carob-Bean, etc. In this connection a very interesting exhibit of scents prepared by Mr. PRIORIS was shown. The plants used are grown on over 200 acres of plantation, and consist of Pelargoniums, Jasmines, Tuberoses, Roses and Oranges, showing that this industry can be profitably developed in India.

The poultry section, which the Horticultural Society added to the show last February, created great interest, and the exhibits were not only numerous, but showed excellent quality both in "Exhibition" as well as "Utility" points.

In the point of number of visitors, the show was well-patronised, and the visitors greatly appreciated the music of the Palace Orchestra, kindly sent by His Highness the Maharaja of Mysore, this feature being in keeping with flower shows at home.

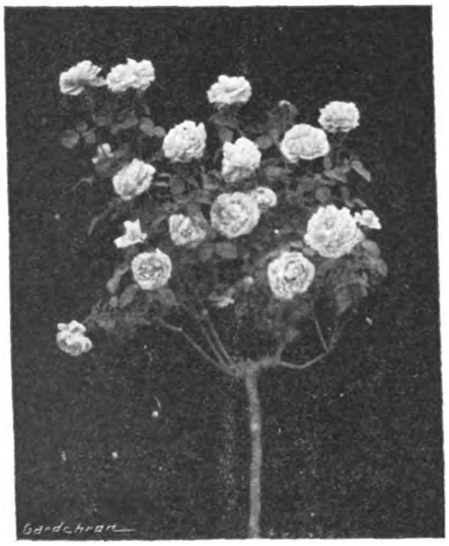

FIG. 27.—PAUL NEYRON ROSE AT MYSORE SHOW.

At 5.30 p.m., the prizes, so far as they consisted of Cups, Medals and silver articles—and which included those for the garden competition—were given away by Mrs. Pears, who was accompanied by the Hon. Mr. S. E. Pears, British Resident in Mysore. Lady Banerji won His Highness the Maharaja's Large Silver Challenge Cup for the largest number of prizes taken at the show.

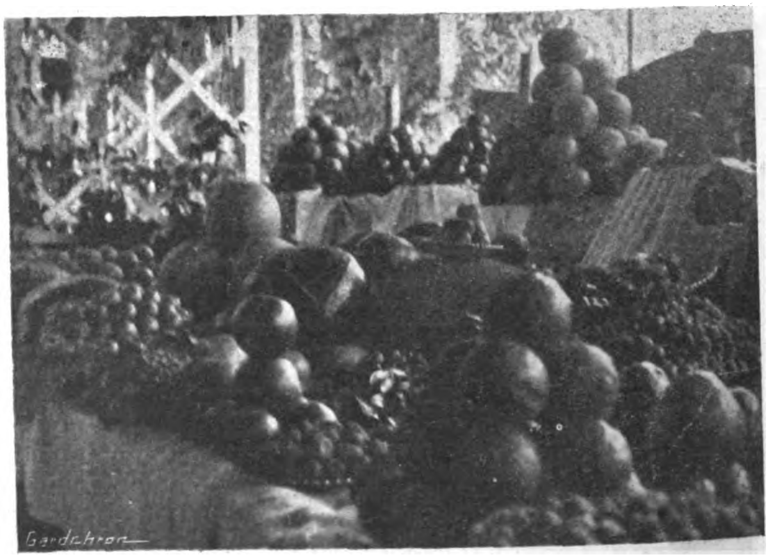

FIG. 28.—COLLECTION OF FRUITS AT MYSORE SHOW.

The Horticultural Society is to be congratulated on the splendid success achieved, and on the great expansion of its activity. *H. C. J.*

ROYAL HORTICULTURAL.

AT the first meeting of the New Year, held at Vincent Square on Tuesday, January 12, there was a bright and interesting exhibition and a fair attendance of Fellows. Orchids were unusually prominent and provided most of the colour and interest; it is worthy of note that the two largest displays were from amateur growers, one coming from Glasgow and the other from Gloucestershire, and for each of these the Orchid Committee recommended the award of a Gold Medal

Orchid Committee.

Present: Mr. C. J. Lucas (in the Chair), Mr Gurney Wilson (Hon. Sec.), Mr. Fred J. Hanbury, Sir George Holford, Mr. H. J.. Pitt, Mr. S. W. Flory, Mr. Arthur Dye, Mr. Fred K. Sander, Mr. H. G. Alexander, Mr. Charles H. Curtis, Mr. A. McBean, Mr. J. C. Cowan, Mr. H. H. Smith, Mr. T. Armstrong, Mr. Robert Paterson, Mr. J. E. Shill, and Mr. Stuart Low.

FIRST-CLASS CERTIFICATES.

Brasso-Cattleya Mrs. Robert Paterson (*C. Clotho* × *B.-C. Cliftonii magnifica*).—A fine hybrid of excellent form and size and beautiful colour. The broad petals and the somewhat smaller sepals are a lovely shade of soft rosy mauve. The lip is frilled but not fringed, and is rosy mauve at the base with a broad crimson-purple front portion and a yellow throat. Shown by Messrs. BLACK AND FLORY.

Cypripedium Marmion ,Holford's var. (*Germain Opoix* × *Jura*).—In this hybrid the high colouring suggests great possibilities. The segments are all broad and of great substance. The rounded dorsal sepal has a wide white margin but the rest of the sepal is rich deep port-wine colour; the petals have a green margin surrounding a broad area of reddish-brown, almost a dark crimson. The lip is green, shaded with brown. Shown by Sir GEORGE HOLFORD (gr. Mr. H. Alexander), Westonbirt.

Cypripedium Christmas Cheer (*parentage unknown*)—A handsome Cypripedium suggesting a close affinity with C. Cappa Magna. The broad, dorsal sepal has a white apical margin which sets off the deep red of the centre that shades to deep rose as it nears the white margin. The wavy petals are rich reddish-brown edged with green, and the lip is of similar colour. Shown by ROBERT PATERSON, Esq., Cathcart, Glasgow.

AWARDS OF MERIT.

Cypripedium Saladin (*Chapmanii* × *Olenus.*)—An interesting hybrid with very broad sepals that have a whitish, green tinged ground, almost covered with reddish-purple spots. The lip is elongated and dull rose colour, while the dorsal sepal is white, faintly shaded with green and veined with deep rose. Shown by ROBERT PATERSON, Esq.

Cypripedium Baldur (*G. F. Moore* × *Niobe*).—An attractive flower of medium size and good form. The rounded dorsal sepal has a green base, but the major portion has deep reddish-rose shading and lines on a white ground. The petals are brown and green and the lip of similar colouring. Shown by Sir George Holford.

Cypripedium St. Kentigern (*Albert Fisher* × *Perseus*).—Although this hybrid has rather weak petals of a rich brown and green colour, it is the vivid wine-red colour that occupies most of the dorsal sepal, which is the great attraction. Around this brilliant area runs a white margin, into which the richer hue extends in spots and irregular markings. Shown by Robert Paterson, Esq.

Miltonia Princess Mary var. roseum (*Hyeana* × *Bleuana*).—A pretty Miltonia of pleasing rose-pink colour, the shade being deeper on the sepals and petals than on the broad, bilobed lip. The radiating disc is deep rose-red. Shown by Robert Paterson, Esq.

Cymbidium Erin, Gatton Park var. (*gattonense* × *grandiflora*).—The latter parent has left its mark on its progeny as the big, substantial flowers have solid apple-green sepals and petals, each with a few brown dots at the base. The side lobes of the lip are green on the outside, and the apex is creamy white, but on all these divisions of the labellum there are rich chestnut-brown spots. Shown by Sir Jeremiah Colman, Gatton Park, Reigate.

Groups.

One of the largest of the several fine displays was from Robert Paterson, Esq. (gr. Mr. A. Merry), Stamperland House, Cathcart, Glasgow. The plants had come a long journey, but had not suffered in transit. The group was well arranged, and consisted largely of Cypripediums, for which the Stamperland collection is becoming famous. The central feature was a grouping of Odontoglossums, Odontiodas, and Cymbidiums, the yellow and brown Odontoglossum triumphans showing up well at the back. Fine spikes of Odontioda Colinge and Odontoglossum Miguelito were noted, as well as a good example of Miltonia William Pitt. A few outstanding Cypripediums were C. Britain's Monarch, C. Saladin, C. Major Hanbury Carlisle, with huge green and white flowers; C. Maisie, the white C. Boltonii, C. Arthurianum var. Sanderianum, the dark-hued C. St. Kentigern, C. Monialis var. elegans, and the graceful C. Ballet Girl—altogether a grand exhibit.

The outstanding exhibit on this occasion was the grand display of finely-grown Cypripediums made by G. F. Moore, Esq. (gr. Mr. Page), Chardwar, Bourton-on-the-Water. The group consisted of about two-hundred plants, and these were charmingly arranged on a space of about thirty-six feet by six feet. A large proportion of these Cypripediums were raised at Chardwar, but there were others, such as C. Boltonii, C. Golden Fleece, C. Argo-Fairrieanum, and C. Maudiae, the last being very finely represented. Coming to the big, bold varieties, we can name a few only, those which attracted us by reason of form or colour:—C. Memoria F. M. Ogilvie var. Rex, C. Christopher var. Blanche, C. Christopher var. Grace Darling (very fine), C. Mrs. Eley var. Commodore, C. Peggy (Thomsonii × Fairrieanum), G. Gwen Hannen, C. Memoria H. J. Elwes var. Nerine, C. The Great Mogul, C. Doris Stanton, C. Chrysostom var. Richard Fort (wonderful in form and its yellow, green and white colouring), C. The Prince (a free-flowering hybrid between Tommy Curte and Goliath), the gigantic C. Gwen Hannen var. Field-Marshal, and the almost equally large C. Chrysostom var. Lord Lambourne. All the plants were grandly grown and it appeared to us that the flower stems were taller than we have seen them in previous displays from Chardwar.

Mr. H. T. Pitt's exhibit (gr. Mr. Thurgood) included several very interesting Orchids, notably three spikes of Eulophiella Rolfiae (awarded a Cultural Commendation), with numerous large, deep rose-coloured flowers; Epidendrum Endresio-Wallisii, largely represented, Angraecum rhodostichum, Trichopilia Goldei, Miltonia Endresii, Maxillaria luteo-alba, Odontoglossum Uro-Skinneri alba and other subjects that are so well grown at Rosslyn.

Coelogyne Mooreana with four fine spikes of its white flowers was shown by Sir Jeremiah Colman (gr. Mr. J. Collier), Gatton Park, Reigate, who also contributed several excellent Cymbidiums, C. Erin, Gatton Park var., attracting a good deal of attention by reason of its deep apple-green sepals and petals and the bright red-brown spots on the lips.

A pleasing display was made by Messrs. Stuart Low and Co., whose graceful exhibit included arching spikes of Odontoglossum Helvetia, O. Cardinal Wolsey, O. crispum, Odontioda Wilsonii and O. Bohnhoffæ, and Cybidium Atalanta. In addition to these there were examples of Oncidium bi-callosum, the handsome Sophro-Cattleya Doris, Cypripedium Tautzianum, the showy Brasso-Cattleya Ruby and the old Cypripedium Schlimii.

Messrs. Cowan and Co. presented a most attractive exhibit in which Oncidium splendidum was well represented, together with several Cymbidiums, Miltonia Bleuana var. Reine Elizabeth, and a fine lot of Cypripediums. These last included C. Golden Wren, C. Cyril Lee, the big C. Leeanum, Blenheim var., C. Elsie II, a showy hybrid between C. Hermes and C. Lady Dillon; C. Albert Fisher and the elegant C. Minos var. Youngii.

Messrs. Sanders contributed a collection of Cypripediums, Cymbidiums, and other Orchids, including the dainty little Oncidium ornithorhynchum and the quaint Cirrhopetalum Thouarsii. Very fine were their specimens of Cattleya Titus and C. H. S. Leon, while Laelio-Cattleya Fatima, in dull gold and bright purple, was very attractive. Cymbidium Moira var. Dulce, with three large spikes, was the central plant of this group.

Messrs. James Cypher and Son brought up a nice lot of Cypripediums, and of these we were attracted by C. Trollius var. Craveniamum, C. Mirum, C. Alabaster, C. Cupid, C. Alcibiades, and C. San-actaeus. Masdevallia tovarensis, Odontoglossum aspersum, and Brasso-Cattleya Winslow were included in this exhibit.

Messrs. J. and A. McBean had a comparatively small group, but they showed capital spikes of Cymbidium albanense, C. Schlegelii, Odontoglossum Pyramus, O. triumphrosum, some good forms of O. crispum, Odontioda Dovere (very handsome deep, Venetian red), and the finely-formed Laelio-Cattleya Sunbelle.

Messrs. Charlesworth and Co. showed some specimens of their fine strain of Odontoglossum xeximium zanthotes, the attractive Odontonia Dora, several huge blooms of Brasso-Cattleya British Queen, Odontoglossum Nada (very brightly coloured), and an enormous flower of Cypripedium Major Hanbury Carlisle.

In Messrs. Black and Flory's exhibit there were numerous fine Cypripediums and bright examples of Cattleyas and Lælio-Cattleyas. Cypripedium Yule, and C. Antasia were two fine Lady's Slippers. Choice Odontoglossums were a feature of Messrs. Armstrong and Brown's exhibit, and one of these, O. Harvengtense, Rosefield var., brought back many memories. Odontiodas were also good and there were excellent inflorescences of Laelio-Cattleya Schroderae, in addition to a selection of Cypripediums.

Mr. Harry Dixon showed a few Odontoglossums and Cypripediums, Oncidium cheirophorum and Sophronitis grandiflora. Messrs. A. J. Keeling and Sons sent a few Cypripediums and the yellow-edged Odontioda Marigold (Bradshawiae × Odm. triumphans).

Floral Committee.

Present: Section A.—Mr. H. B. May (in the chair), Mr. A. Turner, Mr. E. M. Wrightman, Mr. H. J. Jones, Mr. J. M. Bridgeford, Mr. Wm. Howe, Mr. D. Ingamells, Mr. M. C. Allwood, Mr. F. G. Cousins, Mr. E. R. Janes, Mr. W. H. Page, Mr. Jas. B. Riding, Mr. H. L. Smith, Mr. A. Vasey, Mr. W. B. Gingell, Mr. D. B. Crane, Mr. W. P. Thomson, Mr. F. Streeter, Mr. Chas. E. Pearson and Mr. G. W. Leak.

Section B.—Mr. Charles T. Musgrave (in the chair), Mr. James Hudson, Mr. G. Reuthe, Mr. G. C. Stern, Mr. W. J. Bean, Mr. E. A. Bowles, Mr. T. Hay, Mr. G. Yeld, Mr. A. Bedford, Mr. F. G. Preston, Mr. L. R. Russell, Mr. Amos Perry, Mr. R. D. Trotter, Mr. R. C. Notcutt and Sir William Lawrence, Bart.

Awards of Merit.

Chrysanthemum Winton—This is a valuable decorative variety of Japanese type and useful market size. It is a graceful bloom made up of broad, pointed florets of rich yellow colour. Shown by Messrs. Tacon and Horwood.

Dombeya Glaneliae (provisional name).—A well-grown plant of Dombeya was provisionally named Dombeya Glaneliae. It was a robust, erect, single-stemmed shrub. The leaves, which measured a foot across, are ovate-reniform in shape, slightly triangular at the tips, of soft texture, lightly toothed, and the prominent ribs are often touched with reddish colour. The flowers are borne in a dense pendulous corymb, with leafy bracts, and are of a bright pink colour with small carmine blotches at the base of the petals. The leaves and flower stems are covered with a fine tomentum. We understand that Lord Glanely brought a plant from Madeira, though the genus is mostly tropical African, spreading south to Natal. There are known to be fully one hundred species, but few are in cultivation. Shown by Lord Glanely (gr. Mr. Bannerman), Chippenham.

Groups.

In a large floor space near the gallery stairs the Hon. Vicary Gibbs (gr. Mr. E. Beckett), Aldenham House, Elstree, arranged a large group of well-grown plants of Euphorbia (Poinsettia) pulcherrima and its varieties roseaf carminea and alba, under drooping leave so three luxuriant specimens of Kentia Fosteriana.

Messrs. Cragg, Harrison and Cragg showed particularly good flowers of their new Chrysanthemums Bianca and Phryne, and the Hon. Vicary Gibbs staged equally good blooms of the white-flowered Madame Oberthur.

Carnations were exceedingly well shown by Mr. C. Engelmann, who had splendid blooms of Laddie, Red Laddie, Rouge, Nero, and other good varieties. At one end of the Carnations Mr. Engelmann had an enviable vase of Roses. The varieties were America, Premier, and Columbia.

Amongst the good Carnations shown by Messrs. Stuart Low and Co. were vases of Philip Sassoon, Mauve Queen, and Topsy, and they also staged a few profusely-flowered plants of Cyclamen persicum varieties. Messrs. Allwood Bros. included vases of Shot Silk, Master Michael Stoop, George Allwood, and Edward Allwood in their collection of Carnations, and also showed some vases of Dianthus Allwoodii.

There were several interesting little rock gardens. Messrs. Wm. Cutbush and Son made their sandstone rockery bright with heavily-berried little bushes of Pernettya mucronata and its varieties, graceful sprays of Hamamelis arborea, Galanthus Elwesianus robustus, and other subjects.

Iris unguicalaris, I. reticulata and I. sind-pers were freely planted by Messrs. Waterer, Sons and Crisp in their small rock garden which also contained plants of the elegant little Sisyrinchium grandiflorum and Anemone fulgens.

In addition to his miniature alpine gardens Mr. F. G. Wood built one of conventional design and furnished it with the pretty Crocus Sieberi, Christmas Roses, Polyanthuses and Snowdrops. Messrs. L. R. Russell, Ltd., had a number of bushes of Hamamelis arborea and Berberis aquifolium, and the Misses Hopkins set up a neat little rockery.

A large number of flowers of their excellent strain of St. Brigid Anemones were shown by Messrs. R. Gill and Son. Mr. Klinkert again exhibited well trained topiary examples.

An extensive selection of well made garden tools, artificial manures, peat, loam, and other garden necessaries was attractively displayed by Messrs. Wm. Wood and Son. In what has almost become their usual corner Messrs. Thos. Gunn, Ltd., again showed a good collection of garden tools. Messrs. Sander and Co. contributed many vases and other garden ornaments.

There was a considerable number of exhibits of paintings and drawings of garden scenes and flowers.

Fruit and Vegetable Committee.

Present: Mr. C. G. A. Nix (Chairman), Mr. W. Poupart, Mr. H. S. Rivers, Mr. George F. Tinley, Mr. J. Cheal, Mr. P. C. M. Veitch, Mr. P. D. Tuckett, Mr. W. Giles, Mr. A. Bullock. Mr. T. Pateman, Mr. A. Metcalfe, Mr. E. Beckett, Mr. A. Jordan, Mr. J. Wilson, Mr. E. Neal, Mr. W. H. Divers, and Mr. A. N. Rawes.

Apple Saltcote Pippin, which Mr. H. Chapman, Rye, submitted for award at the Holland Park exhibition on September 22, 1925, when the Committee requested to see fruits later, was again shown, but the fruits were somewhat shrivelled and, judging by the flavour and texture, much past their best. The variety, however, is of very attractive appearance, and, when eaten at its best, is undoubtedly of much merit. The Chairman stated that he had a tree which had made exceptionally strong growth. In view of its possibilities it was recommended to be grown at Wisley in the trial of commercial fruits.

A small but very good Apple of the Cockle Pippin type known as High View Pippin, was shown by Mr. E. Hill, High View, Weybridge (gr. Mr. F. Fitzwater). Unfortunately the fruits are too small to warrant an award, but they are very attractive in appearance, of conical shape and excellent quality. The variety is said to have been raised from Sturmer Pippin crossed with Cox's Orange Pippin.

Messrs. Sutton and Sons exhibited 128 distinct kinds and varieties of vegetables, having in all 130 dishes. This splendid collection included practically everything the kitchen garden affords at this season and many forced out of season, such as Seakale, Chicory, Endive, Mushrooms and Dandelion. These blanched vegetables were all exceptionally fine. A prominent position was given to some splendid bulbs of Ailsa Craig Onions, and at the back of these were some remarkably fine Leeks of the variety Acquisition. Other good Onions shown were Improved Reading and A 1. Large Parsnips of the Tender and True variety were prominent and other subjects worthy of special note were Broccoli Christmas White, Savoy Selected Drumhead, Celery Superb Pink and Solid White; Beet Blood Red, Carrot Early Gem and Brussels Sprouts Dwarf Gem and Fillbasket, small and large varieties respectively. Variegated Kales were used as decorations.

Messrs. G. Bunyard and Co., Ltd., showed fifty-two varieties of Apples, all of exceptional quality, the fruits being large and highly-coloured. A selection of the best sorts includes Chas. Ross, Ribston Pippin, Cox's Orange Pippin, Blenheim Pippin, Belle de Boskoop, Heusgen's Golden Reinette, Wagener, Sturmer Pippin, Autumn Pearmain, Adams's Pearmain, Allington Pippin, Rival, Wealthy, Ontario, Rev. W. Wilks, Lane's Prince Albert, Bramley's Seedling, Byford Wonder, Norfolk Beauty, Blue Pearmain, and Allen's Everlasting.

Mr. T. Ernest Waltham, 97, Upper Tulse Hill, S.W. 2, displayed remarkably faithful models of Bramley's Seedling and Newton Wonder Apples done in a composition like rubber and perfectly indestructible. Fruit growers were much interested in these models, which could be made to serve a variety of useful purposes.

GARDENING APPOINTMENTS.

Mr. F. Manfield, for the past ten-and-a-half years Gardener to Col. G. H. Trollope, Fairmile Hatch, Cobham, Surrey, as Gardener to R. Bennett, Esq., at the same place. (Thanks for 2/6 for R.G.O.F. Box.—Eds.).

Mr. J. Mitchell, as gardener to Lieut.-Col. Sir G. L. Holford, K.C.V.O., at Westonbirt, Tetbury, Gloucestershire.

MARKETS.

COVENT GARDEN, Tuesday January 12th, 1926

Plants in Pots, etc.; Average Wholesale Prices.

(All 48's except where otherwise stated).

	s. d. s. d.
Adiantum cuneatum per doz.	10 0-12 0
—elegans	10 0-12 0
Aralia Sieboldii	9 0-10 0
Araucarias, per doz.	30 0-42 0
Asparagus plumosus	12 0-18 0
—Sprengeri	12 0-18 0
Aspidistra, green	36 0-60 0
Asplenium, per doz.	12 0-18 0
—32's	24 0-30 0
—nidus	12 0-15 0
Azaleas, '48's, each	4 0—6 0
Cacti, per tray—12's, 15's	5 0- 7 0
Chrysanthemums, pot grown, in variety, 48's, per doz.	15 0-24 0
Cinerarias, 48's, per doz.	18 0-21 0
Crotons, per doz.	30 0-45 0
Cyclamens, 48's in variety, per doz.	24 0-30 0
Cyrtomium	10 0-25 0
Erica hyemalis —48's, per doz.	24 0-30 0
—60's, per doz.	15 0-18 0
—gracilis, 48's per doz.	24 0-30 0
—nivalis, 48's, per doz.	24 0-36 0
above varieties in 60's, per doz.	12 0-15 0
—in Thumbs, per doz.	9 0-10 0
Genistas, 48's, per doz.	24 0-27 0
Marguerites, 48's per doz.	18 0-21 0
Nephrolepis in variety	12 0-18 0
—32's	24 0-36 0
Palms, Kentia	30 0-48 0
—60's	15 0-18 0
Pteris, in variety	10 0-15 0
—large, 60's	5 0- 6 0
—small	4 0- 5 0
—72's per tray of 15's	2 6- 3 0
Roman Hyacinth, on bulbs, per doz.	4 6- 5 0

Remarks.—With the exceptions of Richardias (Arums), Lilium longiflorum and L. speciosum, there has been a considerable increase of most subjects notably of White Azaleas, Carnations, Daffodils, Freesias, Forget-me-nots, Narcissus Soliel d'Or, Narcissus Grand Primo, Tulips, which are much improved in quality, Violets and White and mauve Lilac. Lilium longiflorum has advanced considerably in price owing to the supply becoming suddenly short. The first consignment of Daffodils was received from the Spalding district last week; and of Anemone fulgens from the Scilly Isles. Iris tingitana and Snowdrops are also available. Larger consignments are being received from the Channel Islands and also from the south of France. The prices of these imported flowers are on the down grade; their quality, generally, is good. Some very fine red Roses of the Ulrich Brunner variety are being received from the south of France. Holland is sending in addition to Lilac, Prunus, Lily-of-the-Valley and Tulips in variety.

Vegetables: Average Wholesale Prices.

	s. d. s. d.
Artichokes, green per doz.	2 0--3 0
Asparagus—	
—English	3 0--4 0
—Paris Green	4 6--5 6
—Lauris	6 0—7 0
—Sprue	1 3--1 6
Beans—	
—Madeira, per basket	5 0--6 0
—Guernsey & Worthing forced—	
—Finest	5 0—6 0
—Ord.	3 0—4 0
Beets, per cwt.	6 0--8 0
Cabbage, per tally	6 0-10 0
Celery, per doz. tans	24 0-36 0
Cauliflowers—	
—St. Malo, per crate	3 0--6 0
Carrots, per bag	6 0--8 6
Chicory, Belgian, per lb	0 7--0 8
Cucumbers, per doz.	16 0-36 0
Endive, per doz.	2 0--4 0
Horseradish, per bundle	1 3--2 0
Lettuce, round, per crate	4 0--6 0
—French Cos, per doz.	6 0--7 0
Mint, forced	4 0--8 0
Mushrooms,	
—French	1 0--2 0
—cups	2 6--4 0
—Broilers	1 0--2 0
Onions—	
—Dutch	8 0--8 6
—English, per cwt.	8 0--9 0
—Valencia	8 0-10 0
Parsnips, per cwt.	6 0--8 0
Peas, French crate	4 0--6 0
Potatos—	
—King Edward, per cwt.	6 6--8 0
—others	4 6--6 0
New Potatos—	
—Algerian per lb.	0 2--0 3
—Azores, per case	20 0-25 0
—Canary Island	10 0-18 0
—Guernsey	1 0--1 3
Rhubarb, forced per doz. bundles	2 0--2 6
Seakale, per punnet	2 0--2 6
Sprouts, per ½ bag	4 0--6 0
Savoys, per doz.	1 6--2 6
Tomatos, Canary Islands Best	16 0-18 0
Turnips, per cwt.	5 0--6 0

Remarks. Business has not been altogether unsatisfactory for the time of year, a fair volume of trade having been transacted. The earlier shipments of fruits from South Africa are meeting a steady demand, Peaches, Apricots and Plums being generally in good condition. Imported Apples are meeting with a poor trade, Jonathan and Newtown particularly, as a result of the arsenic scare. A few good English Blenheim Pippin, and Cox's Orange Pippin are realising comparatively good prices, while there seems also a better tendency in the trade for large cooking Apples. English Grapes are not quite so plentiful, but their prices show little variation. Oranges are not selling freely, and Bananas are a quiet trade. Forced Beans from Guernsey and Worthing are scarce and dear. New Potatos from Guernsey, the Azores, Canary Islands and Algiers sell very slowly indeed. Asparagus, both French and home-grown, is also a bad trade, and even at low prices. Seakale is more abundant and quoted at lower rates. Forced Rhubarb has appeared in quantity very rapidly, but is selling comparatively well. Mushrooms seem to be an improving business. Tomatos from the Canary Islands show a considerable variation in quality and condition, with a corresponding range of values. A few Cucumbers are arriving, mainly from the Worthing district, and are selling at high figures. Heavy shipments of Cauliflower from northern France have been arriving lately, and, except where they have been out of condition, have sold very well. Lettuces and other salads from France have been an important section during the past few weeks, and have sold well throughout. Green vegetables are a fair business at steady rates. The trade in old Potatos remains stable, with good sorts in demand.

GLASGOW.

The New Year markets were under the influence of the holidays, and notwithstanding that supplies of cut flowers were on a much smaller scale. Prices moved irregularly, with a sharp decline in some subjects. This tendency was reflected particularly in Carnations, Lilium longiflorum (Harrissii) and Richardias (Arum) which were only worth from 4/- to 5/-, as against 8/- to 10/- in the preceding week. Roses ranged from 5/- to 8/- per dozen, and were cheaper than they have been for several weeks. Chrysanthemums are nearly over for the season; the only varieties on sale were Heston White and Winter Cheer. Small blooms made 8d. to 1/-, and large, 1/- to 1/9 for 6's. Tulips were more plentiful, and the different varieties were disposed of as follow:—W. Copland, 3/- to 4/- per dozen; Prince of Austria and Vermilion Brilliant, 2/- to 3/-; Murillo, 2/- to 2/8; Rosina, 2/6 to 3/4; La Reine, 3/- to 4/-; and Thomas Moore, 1/8 to 2/6. Golden Spur Daffodils brought 1/6 to 2/- per bunch, while Narcissi kept fairly steady at 4/- to 5/- per dozen bunches. Hyacinths were more easily moved, white medium realising from 8d. to 10d. for 3's.; specials, 1/- to 1/2; pink, 10d. to 1/4, blue, medium, 8d. to 10d.; and specials, 10d. to 1/2. Lily-of-the-Valley averaged 2/- per bunch, and English Violets were also down at 1/6 to 2/-. Bowls of Hyacinths and Tulips were worth from 1/6 to 2/-.

A quieter business was transacted in the fruit market, and values of Oranges and Apples moved in favour of buyers. A cargo of Valencia fruit arrived in the Clyde in defective condition, and at the auction sales cases of 300's and 360's were sold so low as 5/- to 6/-. As a result of a stormy passage large numbers of cases were damaged by salt water. Counts of ordinary quality were quoted as follows: 300's, 9/- to 13/-; 360's and 504's, 11/- to 13/-; 420's, 17/- to 24/-; 714's, 16/- to 19/-; and 1060's 18/- to 21/-. Murcia 360's brought 9/- to 10/6; and 300's 10/- to 14/-. Messini Lemons, 300's, ranged from 10/- to 12/-; and Murcias, from 14/6 to 18/-. Grape Fruits was slightly down at 21/- to 23/- for Porto Rico brand, and 29/- for Blue Goose. Apples: American Winesap, 11/6 to 14/- per case; Delicious, 11/- to 16/-; Oregon Newtown, 12/- to 17/6; Spitzbergen, 11/- to 13/6; Jonathan, 9/- to 11/-; Winter Banana, 12/- to 14/-; and Rome Beauty, 10/- to 12/-. Virginia:—Ben Davis, 16/- to 20/- per barrel; Gano, 16/- to 19/-; York Imperial, 27/- to 31/-; Winesap, 30/- to 35/-. Canadian:—Kings, 28/- to 31/-; Baldwin, 18/- to 24/-; Spy, 24/- to 27/-; and Greening, 27/- to 31/6. English: Bramley's Seedling, 16/- to 20/-. Winter Nelis Pears, Californian, 15/6 to 17/6 half-case; Washington, 8/- to 12/-; Oregon, 16/- to 20/-; Beurré d' Anjou, 6/- to 8/-; Doyenné du Comice, Oregon, 15/- to 20/-. Mandarins sold at 1/- to 1/3 per tray, and 16/- to 22/- per case. Scotch Tomatos made 8d. per lb for firsts, and 4d. per lb for best quality. Mushrooms declined to 1/6 per lb. Grapes remained steady: English Gros Colmar sold at 1/6 to 2/6 per lb; Scotch, 1/6 to 3/-; and Belgian, 1/- to 1/3.

ANSWERS TO CORRESPONDENTS.

Chrysanthemums Diseased. — *T. L.* The fungus present on your Chrysanthemums is the common grey mould, Botrytis cinerea. All dying parts of the plant should be removed and burnt. All decaying vegetable matter in the vicinity should also be removed, as the fungus lives on this and spreads to cultivated plants. As much fresh air as possible should be admitted to plants when they are growing indoors, having due regard to the weather.

Cherry Shoots Retaining their Old Leaves.—*Constant Reader.* The disease is known as "Cherry Leaf Scorch," and is caused by the fungus Gnomonia erythrostoma. This fungus enters the leaf-stalk and prevents the leaves from being thrown off in the autumn. On the dead leaves fructifications are formed with spores that infect the young leaves the next season. If all the dead leaves are removed in any one season, the tree will be quite healthy again. If this is impossible, spraying twice with Bordeaux mixture just before and after the flowering season, will control the disease.

Unhealthy Apple Trees.—*W.* From the brief description you give of your Apple trees dying back, it would appear that the roots are not in a very healthy state. If the roots are starved for want of food, canker, mildew, and other diseases will soon attack the weakest trees. Examine the roots and supply them with necessary food to encourage healthy growth, when these diseases will disappear. Potash alone will not cure or prevent the shoots dying back, but sulphate of potash may safely be used at the rate of two ounces to the square yard, and kainit at double the amount.

Communications Received.—A. G.—A. T. H.—W. P.—A. T. J.—H. C.—H. G. C.—F. T.—A. S.—W. J. McW., Hobart.—P. C.—W. T. J.—B. & W.—J. F.—C. H. O.

THE
Gardeners' Chronicle

No. 2039.—SATURDAY, JANUARY 23, 1926.

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AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 39.5°

ACTUAL TEMPERATURE—
The Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, January 20, 10 a.m. Bar. 30.0 Temp. 42° Weather, Sunny.

Plant Introductions to the United States.

THE Bureau of Plant Industry of the United States Department of Agriculture, in issuing its fourteenth annual list "of the more important introduced plants now ready for experimenters," has laid gardeners of all countries who see the publication under a heavy debt of gratitude. Gardeners in the United States who are willing to experiment with the plants enumerated in the list, may apply for and receive specimens with the sole obligation of supplying the Federal Horticultural Board in due season with a report on the result of their experimental cultivations. The scheme is an admirable one. It encourages the spirit and habit of experimentation and in due course it must lead to United States gardens becoming the homes of vast numbers of plants from all parts of the world. In the long run, moreover, the results of these periodical distributions of plants of promise will be bound to throw light on the extent to which plants are susceptible of acclimatisation. Many gardeners, it is true, accept acclimatisation as a fact. They assume that cases are known which prove that a plant taken from its habitat may gradually become accustomed to a very different one. A mesotherm, for example, that is, a plant which lives naturally in a relatively low temperature, may upon this hypothesis be gradually acclimatised to live happily at lower temperatures. Yet any one who will review the evidence in favour of acclimatisation, at all events with respect to temperature, is likely to be sceptical as to the extent of the powers of plants to accommodate themselves to new conditions. No one, of course, denies that many plants possess considerable elasticity of power of accommodation. But that is neither here nor there. What is wanted are experiments which show that by gradually subjecting a given species to more severe conditions, e.g., of temperature, it becomes able to live in places where, had it been brought thither forthwith without preliminary and gradual "hardening," it would have died. Experiments of this kind have been made, and made successfully, with certain of the lowest kinds of plants—Bacteria. Species of Bacteria which habitually live within a given range of temperature may be cultured and sub-cultured until, by degrees, they are able to resist either lower or higher temperatures than those which fall within their natural range. With respect to flowering plants, however, we know of no experiments which may be said to demonstrate unequivocally that the higher plants possess any powers of gradually responding to changed conditions so that they become able to grow in regions which were originally too hot or too cold for them. It would seem indeed, that each kind o plant possesses a certain power of cold resistance some more and some less—and that this power remains unaltered. If it is, as we say, tender—tender it remains. If this be indeed true, it is remarkable; for there is no doubt but that plants do possess considerable powers of adjustment to other conditions of environment, particularly those of light and water-supply. These, however, are but reflections called forth by perusing the list of plant introductions already referred to. There are others also, and of a kind which gardeners of all descriptions may share. They are akin to those evolved by reading the fascinating catalogues of plants which it is their pleasure to receive at this time of the year. Who has not had his hopes and imagination quickened by reading these catalogues. The day's work is done. The early evening is closing in. The bare places of the garden have shown themselves in their mid-winter conspicuousness. And here are the plants which should fill them The appeal of the catalogue at such a time is irresistible. So on reading this list the gardener may, at all events, allow his imagination to picture how some of these plants, available to American gardeners, might thrive with him. In the list are fruit trees, new Peaches, Nectarines, and Apricots from China and elsewhere, some of which might, perchance, prove hardier than those he grows under the not too sure shelter of walls or hedges. There are flowering shrubs, some of which, however, we already know; others that we should like to know—Buddleia Forrestii, for example, which is likely to prove hardier than B. Colvillei, and lavender-blue flowered, with leaves covered with white woolly hairs. There is the beautiful autumn-flowered Clematis tangutica obtusiuscula, which was presented by the Hon. Vicary Gibbs, and Cornus capitata, which to see named here reminds us of Cornish gardens and such-like favoured places where only in these islands is it to be seen in full beauty. A new species—or at all events one yet unnamed—of the handsome Loquat (Eriobotrya), so rarely grown and yet so fine an ornament on a wall, and a Koelreuteria, K. formosana, a handsome tree from Japan, but likely to prove tender in frosty places are in the list. The handsome Ligustrum Delavayanum is mentioned and deserves to become popular in the States and here because of its prostrate habit, the handsome setting of its foliage, and its blue-purple fruits; also a Photinia, as yet unnamed, this, too, from China, with red leaf stalks and mid-ribs, white flowers, and rich crimson fruits. There is also a Poplar, Populus Maximowiczii, a stately Chinese tree growing in the coldest, poorest, and driest of soils, with handsome wrinkled leaves like those of a Rosa rugosa, which last long on the tree. And so we read through the interesting list and at the end make one more reflection, namely, that here at all events is some amends made by the Federal Board to American horticulturists from the limitations that by import restrictions it has imposed on them in the way of obtaining plants from commercial growers in Europe.

Gold Veitch Memorial Medal for Alpines.—The Council of the Royal Horticultural Society has decided to offer a Gold Veitch Memorial Medal for the best exhibit of Alpines in pots and pans staged by an amateur at the Society's fortnightly show on 23rd March, 1926.

Appointments.—Mr. J. S. King, who for some years was lecturer in book-keeping, and for the past eighteen months has been advisory economist at the Midland Agricultural and Dairy College, has been offered a similar appointment at University College, Reading. Mr. A. Broadfoot, an assistant to Mr. King, has been appointed County Organiser for West Perthshire.

The Gardeners' Royal Benevolent Institution.—The eighty-sixth annual general meeting of the members and subscribers to this horticultural charity will be held at "Simpson's," 101, Strand, London, on Tuesday, January 26, 1926, at 3 o'clock p.m., for the purpose of receiving the report of the committee and the accounts of the institution (as audited) for the year 1925, electing officers for the year 1926, and for the election of twenty annuitants on the funds. The chair will be taken by Leonard Sutton, Esq., J.P., C.B.E., Chairman of Committee, at three p.m. The poll will be open at three o'clock and close at four o'clock precisely, after which hour no voting papers can be received.

Botanical Magazine. — Eleven plants are illustrated and described in Vol. CLI, Part II (1925), of the *Botanical Magazine*. Clerodendron Colebrookianum, t. 9082, is a native of the Khasia Hills, India, and has long been cultivated in the Temperate House at Kew, where specimens planted out flower and fruit regularly every year. The inflorescence comprises numerous corymbs of white flowers which are succeeded by ornamental fruits, the persistent calyces which support the latter being scarlet. Rhododendron anthosphaerum, t. 9083, is one of the newer Chinese species with a striking inflorescence of deep rose-coloured flowers. The species was discovered by Mr. Forrest, who states that it makes a small tree of some twenty to thirty feet. Apparently Forrest met with two forms of the plant; the one of his first collecting was named R. anthosphaerum by Prof. Dills, the other R. hylothreptum by Sir Isaac Bailey Balfour and Prof. W. W. Smith. The difference between the two plants, however, is so minute that they are considered to be identical. Roscoea cautleoides, t. 9084, is a plant that has been shown on several occasions and described in *The Gardeners' Chronicle* (Vol. LIX, p. 300, and Vol. LXVII, p. 101). The colour of the flower varies—lemon-yellow or rose, deep purple or white. The plant is perfectly hardy and grows best in soil containing lime, leaf-mould and sand. Buddlea alternifolia, t. 9085, like most members of the genus, is a useful garden shrub and perfectly hardy in this country. The flowers, developed in clusters along the slender, curving shoots, are reddish-purple with an orange eye. It will be noticed that Buddlea is spelt without the usual "i"; Dr. Stapf remarks that the plant was named in honour of Adam Buddle, the botanist, and Buddlea, is, he states, obviously the correct spelling, as used by Sprengel in 1809. Catasetum. tenebrosum, t. 9086, was first described by Kränzlin in *Gard. Chron.* Vol. XLVIII. p. 229. The many-flowered raceme of this Orchid is very striking, the flowers being chocolate brown with honey-coloured markings on the lip. × Malvastrum hypomadarum, t. 9087, was first illustrated and described in *Gard. Chron.* June 20, 1908, by Mr. T. A. Sprague, who regarded it as a species. It is apparently a very old plant for there is a specimen in the herbarium of the British Museum dating, at latest, from 1795. The plant is now regarded as a cross between M. capense and M. scabrosum. It is a decorative subject for the conservatory (see *Gard. Chron.*, August 1, 1908, Fig. 34), and easy of cultivation; Aconitum anglicum, t. 9088, is a showy Monkshood, found wild in parts of the south and south-west of England and the adjoining parts of Wales. It is closely allied to A. Napellus, and Dr. Stapf states that it matters little if we speak of it as A. anglicum or A. Napellus anglicum. The illustration of Berberis Vernae, t. 9089, shows a flowering branch of this species with short, columnar racemes of yellow flowers developed from each fascicle of leaves. The foliage on the shoot is entire and spathulate, but the illustration of the spray with fruits shows the leaves broader and spinously dentate. The fruits are like small Red Currants. Itea ilicifolia, t. 9090, was described and illustrated in these pages (*Gard. Chron.*, August 5, 1911, Fig. 46), when it received the R.H.S. Award of Merit. It is a useful evergreen shrub or small tree for small gardens and produces long pendulous racemes with brownish-yellow flowers. The leaves are glossy and toothed, very much like Holly leaves. Papaver commutatum t. 9091, has been described on frequent occasions in *Gard. Chron.* under its synonym of P. umbrosum; in other works it has been described as a variety of P. Rhoeas, which it resembles both in flower and foliage. It is said to be as easy to grow as the common Poppy and there are double forms. Geranium Farreri, t. 9092, is a Chinese species; a low, perennial herb with opposite, reniform leaves and dainty flowers faintly suffused with pink and having bluish-purple anthers.

Some Practical Aspects of Botany.—Under the auspices of the Botanical Society of Edinburgh, Professor J. M. F. Drummond, M.A., F.L.S., of Glasgow University, delivered a public lecture in the Royal Botanic Garden, Edinburgh, on the 15th inst., entitled "Some Practical aspects of Botany." After briefly reviewing the evolution of botanical science to its present dimensions, the lecturer proceeded to consider the factors making for success in the growing of agricultural crops. These factors were three in number: (*a*) The nature of the crop plant; (*b*) soil conditions, which affected the nature of the plant, and (*c*) weather conditions. After a few remarks on the last factor, which at present is almost beyond control by the farmer, the lecturer dealt with the other two factors in greater detail. He instanced the case of the root nodules on Leguminoseae as an example of how soil conditions affected the crop plants, pointing out that certain genera appeared to have their own strain of the Bacillus radicicola, which was responsible for the nodules, and that unless the soil contained these bacteria, the plants would not attain to their maximum development. Dealing with the first factor, he emphasised the importance of the pure-line breeding discovered by Shirreff, Johannsen and others, and the value of Mendel's work in plant breeding.

Rev. Hilderic Friend.—Over a long series of years the name of Hilderic Friend has been familiar to readers of *The Gardeners' Chronicle*, as he has been one of our most valued contributors. Widely travelled, widely read, gifted with a wonderful memory, possessing a genius for the study of the smaller created things, and a remarkable knowledge of the derivation of words, it is small wonder that his contributions find general acceptance and appreciation. During a stay of many years in the far East, the Rev. Hilderic Friend studied natural history and oriental languages, thus laying up great stores of knowledge which have formed the groundwork of his erudite articles on "Garden Craft in the Canticles," "The Garden in Antiquity," "Classical and Legendary Gardens," etc. Owing to ill health and an accident to his left eye, Mr. Friend was compelled to return home from China and to spend much of his time in the open air. This led him to make a closer study of nature, with the result that he was peculiarly well-fitted to write such interesting books as *Flowers and Flower Lore*, *Glossary of Devonshire Plant Names*, and others of similar character. In 1890, he began that study of annelids which has brought him considerable fame in the world of natural history. For thirty-five years he has continued this study, adding many new species to our list of native Oligocheats. In 1914, he undertook research work for the Board of Agriculture at the Birmingham University with a view to determining the relation of white worms (Enchytraeids) to diseases of plants. In addition to his articles in *The Gardeners' Chronicle*, Mr. Friend has contributed to the *Journal of the Microscopical Society*, *Science Gossip*, the Linnean and other societies, descriptive articles on the new species, action and life histories of British worms, and quite recently he wrote his interesting *Story of the British Annelids* and *British Earthworms and how to Identify them*. He also acted as referee on the subject of worms for the *Irish Naturalist* during the thirty-one years of its existence, and has acted in a similar capacity for the authorities at the Royal Gardens, Kew, and other institutions. Mr. Friend now lives in retirement from official duties, but continues his researches purely out of love of nature, and we trust he will be spared for many years to contribute to our columns.

REV. HILDERIC FRIEND.

Germination of Seed Peas.—The Ministry of Agriculture points out that the regulations made under the Seeds Act, 1920, require in the case of a sale of seed Peas, that the seller shall deliver to the purchaser a statement in writing containing certain specified particulars including (1) the name and address of the seller; (2) a statement that the seeds have been tested in accordance with the provisions of the Act; (3) the kind of seed; (4) the percentage of purity if below ninety-seven per cent.; and (5) the percentage of germination; provided that if the percentage of germination is not less than the authorised minimum percentage of germination prescribed in the Schedule to the Regulations (viz., seventy per cent), a statement to that effect which shall include the authorised minimum percentage of germination, shall be sufficient. As was the case in 1924, there are indications that the germination of the 1925 crop of seed Peas is below normal and that consequently a considerable proportion of the Peas marketed this season will be found to germinate slightly less than the minimum percentage prescribed in the Seeds Regulations. The sale of seed Peas with a germination of less than seventy per cent. is not contrary to the Regulations, provided the actual percentage of germination is declared. To avoid failures in the crop, it is advisable that seeds testing less than seventy per cent. should be sown rather more thickly than usual.

British Mycological Society.—The programme of the meeting of this Society to be held at University College, Gower Street, W.C., on Saturday, January 23, at 11 a.m., is as follows:—Mr. B. Barnes will make "Preliminary Observations on the Physiology of Lachnea"; Mr. A. Chaston-Chapman will put forward "A Plea for a National Institute of Industrial Micro-Biology"; Messrs. Kodak, Ltd., will demonstrate the Eastman Colorimeter; Mr. J. Ramsbottom is to contribute "Fragmenta Mycologia V"; Mr. G. Tandy will discuss "The Cytology of Pyronema domesticum, Sacc.; and Mr. W. M. Ware will give an account of "Pseudoperonospora Humuli and its Mycelial Invasion of the Host Plant." Members are invited to bring exhibits. Lunch will be arranged in the College Refectory.

The Germination of Rose Seeds.—The difficulty raisers of new Roses have in germinating the seeds was referred to by Dr. William Crocker at a meeting of the American Association for the Advancement of Science, held at Kansas City on the 28th ult. He stated that Rose-breeders have always had a great difficulty in getting good germinations from seeds of hybrid Roses, and some of the species also give very poor results with the ordinary method of seed-raising. It was stated that the late Dr. Van Fleet, the famous U.S.A. rosarian, used to retain his beds of hybrid Rose seeds from five to seven years, a seedling appearing now and then during this long period. Dr. Crocker stated that the temperature of the seed-bed is of paramount importance. The best temperature is about 5° C. and either 0° C. or 10° C. is ineffective The stratification medium or seed-bed is also of much importance. Granulated peat, he said, was a much better medium than sand. After the seeds had begun to germinate at 5° C., the percentage of germinating seeds is increased by a monthly period of transfer from three to five days in a temperature of 20° C, It was found that the seeds of different species of Rosa show a great variation in their development. Under the treatment advocated, seeds of Rosa multiflora required two months to germinate, those of R. rubiginosa and R. rugosa, three to four months, and R. Manettii, eight to nine months.

Flinders Chase, Kangaroo Island.—Flinders Chase, a reserve comprising some two hundred square miles at the western end of Kangaroo Island, South Australia, was set aside as a sanctuary—a flora and fauna reserve—by the Government of South Australia by Act of Parliament in 1919. In a brief account given at the recent meeting of the Linnaean Society Professor F. Wood-Jones, F.R.S., stated that the administration of the reserve is carried out by a small Board, of which the lecturer is the honorary secretary. The work carried on by the Board was outlined, and some account of the fauna and flora was given. Funds for the Chase have to be raised by the Board, and on all moneys collected the Government grants a pound for pound subsidy. It is intended that the Reserve shall function, not only as a sanctuary, but as a depôt for the legitimate supply of scientific material to workers in Australia and other lands, and for the furnishing of living animals to zoological gardens, specimens to museums, and pelts to the fur market. In this way the Board is confident that ample revenue can be raised for much needed work upon the Chase, and granted a continuance of public goodwill and proper political support, it may be safely predicted that Flinders Chase will rank among the important sanctuaries of the world, and be a cherished possession of South Australia when the terrible depletion of the indigenous fauna and flora, which is proceeding on the mainland, has robbed Australia of its unique zoological and botanical interest. Considerable progress has already been made in the direction of introducing on the Chase those species which are in most immediate danger of extermination in continental Australia, and this policy will be steadily continued so far as opportunity and funds permit. A series of lantern slides illustrating the topography and some of the animals and plants of the Chase was shown. The president, Dr. Rendle, and Dr. A. W. Hill, F.R.S., followed with observations which led to the following resolution being unanimously adopted :—"That the Linnaean Society in general meeting assembled having heard with great interest and pleasure the account by Professor Wood-Jones of the Flinders Chase Reserve on Kangaroo Island, desire to express their appreciation of the work which is being done for the preservation of this portion of the South Australian Fauna and Flora."

Orchids in a Public Park in U.S.A.—In the West Chicago Parks is a collection of Orchids, comprising between 3,000 to 4,000 specimens, representing over 400 species and varieties, and including many rare hybrids. Recently, a number of Cymbidium hybrids were imported from England under a special licence, to add to the collection. On the occasion of President and Mrs. Coolidge's visit to Chicago last month a bouquet of Orchids, from the Chicago Park collection, was presented to Mrs. Coolidge by Dr. John Dill Robertson, President of the West Chicago Parks Commissioners.

A Useful Diary.—The *Year Book and Diary* issued by the *Fruit, Flower and Vegetable Trades' Journal* is a very useful publication with ample space on the pages in which the days of the weeks are recorded, for making notes, and with ruled columns for monies received and paid. These pages are interleaved with blotting paper, so that the diary may be made to serve as a blotter in addition to its other uses. Much valuable information to those interested in the fruit and vegetable trades is given in the text on such subjects as monthly operations in orchards, market gardens and nurseries ; suitable washes for fruit trees ; the constituents of fertilisers ; the best market varieties of fruits ; the various insects and pests Orders ; statistics as to imports of fruits, vegetables and flowers ; and other valuable data. The *Year Book* is published by the Lockwood Press, 1, Mitre Court, Fleet Street, London, price 2/- net.

The late Mr. W. R. Dykes.—The late Mr. W. R. Dykes, Secretary of the Royal Horticultural Society and for sixteen years a Master of Charterhouse, left an estate of the gross value of £8,605, with net personalty £4,710.

South African Fruit Trade.—During the past twelve months South Africa exported 1,497,181 boxes of fruits other than Citrus varieties, 450,218 boxes of Citrus fruits, and 68,464 boxes of Pineapples ; these figures show a considerable increase over those for 1923-24. The new feature of the export trade has been the carrying out of extensive experiments in the transportation of fruits from the Transvaal to the coast, for export. By the use of refrigerator cars, fruits pre-cooled in the Transvaal and transported in the refrigerator cars may be exported with profit. The rapid growth of the export trade in Citrus fruits will probably necessitate the provision of cold storage accommodation inland in the near future, and if this accommodation were provided it would meet the needs of the growers of other fruits in the district. The Transvaal fruits have the advantage of reaching the overseas markets before the Cape fruits are ready, and when there are no other fruits of the kind available.

Forthcoming Lectures.—At the meeting of the Royal Society of Arts on Wednesday, the 27th inst., at 8 p.m., Professor John McLean Thompson, D.Sc., will deliver the Aldred Lecture for 1925-26, his subject being "Some General Problems of the Transport by Sea and Conservation in Store of Ripe Fruit."—A lantern lecture will be delivered by Capt. H. C. F. Macdonald under the auspices of the borough of Bermondsey in co-operation with the Bermondsey and Rotherhithe Horticultural Society, on "Lawns and Ornamental Grasses," on Wednesday, January 27, at 7.45 p.m., in the Council Chamber, Bermondsey Town Hall.

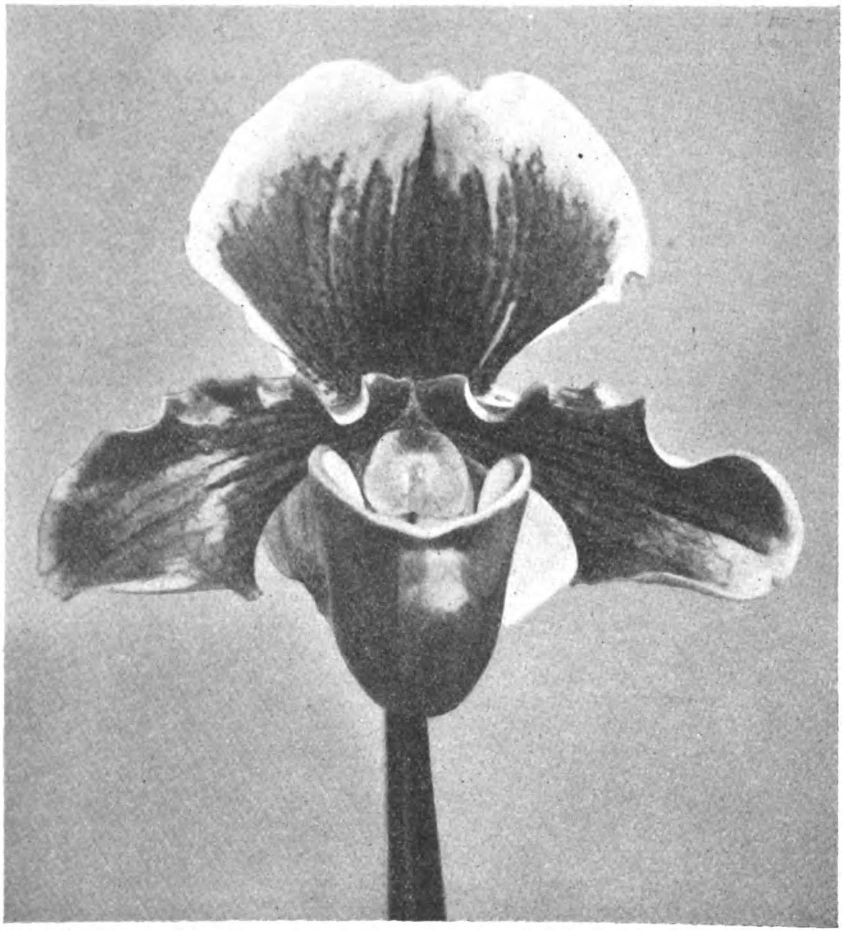

FIG. 29.—CYPRIPEDIUM CHRISTMAS CHEER.

R.H.S. First Class Certificate, January 12. Flowers deep purplish red, white and green. Shown by Mr. Robert Paterson, Glasgow (see p. 52).

Appointments for the Ensuing Week.—Tuesday, January 26 : Royal Horticultural Society's Committees meet ; Gardeners' Royal Benevolent Institution's annual meeting at Simpson's Restaurant, Strand. Wednesday, January 27 : Wimbledon Gardeners' Society's meeting. Thursday, January 28 : Paisley Florists' Society's meeting ; Brighton, Hove and Sussex Horticultural Society's annual meeting. Friday, January 29 : British Florists' Federation annual meeting and dinner at Holborn Restaurant ; Association of Economic Biologists meet

"Gardeners' Chronicle" Seventy-five Years Ago.—*Earthing-up Vegetables.*—Mr. Cuthill, in his very interesting and instructive papers on "Market Gardening round London," tells us that Cabbage plants "are never earthed up—a bad practice for almost any crop." The principal use of moulding up to growing plants is to steady them, and where the soil is light and the situation is exposed to strong winds, that process is absolutely necessary ; at least, I find it so, and have never observed it in any way injurious to the Cabbage tribe. Late Broccoli I mould up with a vengeance, my practice being to take out every row in the autumn and lay them down in the usual way ; those that remain, being then four feet apart, have the soil from between the rows banked up (like earthing Celery) so as to cover the whole of the stems up to the lower leaves, which enables the plants to stand erect even in the roughest weather, and also protects them in a considerable degree from the influence of severe frosts. When the stalks are dug up in spring, many of them will have pushed a number of fibrous roots into the soil that surrounded them. I may here mention—for the benefit perhaps of some who, like myself, never have their eyes gladdened by the sight of a two-horse load of dung "emptied down (as if it were a barrowful) for every thirty feet" of ground—that these said Broccoli stalks make a capital dressing for Potatos when chopped to pieces and dug in as manure. In poor, sandy soil, I have found green manure of this kind more beneficial to Potatos than a dressing of the half-decayed leaves sparingly adulterated with stable litter, which many gardeners are obliged to substitute for dung. *J. B. W., Gard. Chron., January* 25, 1851.

Publications Received.—*Ornamental Trees for Amateurs*, by W. J. Bean ; *Herbaceous Borders for Amateurs*, by R. G. Giffard Woolley. Country Life, Ltd., 20, Tavistock Street, Covent Garden, W.C.2., price 5/- net each.

The Week's Work.

THE ORCHID HOUSES.

By J. COLLIER, Gardener to SIR JEREMIAH COLMAN, Bart., Gatton Park, Reigate.

Dendrobiums.—March and April are usually regarded as the flowering period for deciduous and semi-deciduous species of Dendrobiums and their hybrids. Many of the plants have commenced to push forth their bloom buds, and if it is desired to extend the flowering season, a few of the more forward specimens may be removed from their resting quarters to a house having a slightly higher temperature, and afforded a slight increase of water at the roots. A careful selection is necessary, both in regard to varieties and the condition of the plants. Only well-rooted and thoroughly ripened specimens with the most advanced flower buds should be chosen, giving preference to those of the D. nobile and D. aureum type, and hybrids from these species. The increase of both heat and moisture should be gradual. Little water at the roots will be needed for some time, the object being to cause the flower buds to swell without exciting the plant into growth, as this would cause the buds to turn yellow and drop, or the flowers to be of inferior quality. The plants should be first placed in a house where the temperature is a few degrees warmer than that in which they have rested, finally transferring them to the stove or warm division.

Forcing Dendrobiums.—Unless early flowers are especially desired, forcing should not be hurried; only sufficient warmth should be employed to cause them to develop slowly. With this treatment, the flowers will be of larger size and of greater substance than when much fire-heat has been employed. Keep a sharp watch for slugs which damage the buds so soon as they begin to develop. Traps of damp bran or Lettuce leaves should be placed about the stages near the plants, and the pests searched for at night time and in the early mornings.

Tall-growing Dendrobiums.—Dendrobiums of the tall-growing species, which include such as D. fimbriatum and D. moschatum, should still be resting, and allowed to remain dormant for the next two months. D. Dalhousieanum and its hybrids should be grown in the warmest house at all times, and not kept excessively dry at the roots during their resting season.

FRUITS UNDER GLASS.

By T. PATEMAN, Gardener to SIR CHARLES NALL-CAIN, Brocket Hall, Hertfordshire.

The Cold Orchard House.—Trees growing in borders in the cold orchard house, such as Peaches, Pears, Plums and Cherries, should now receive the earliest possible attention with regard to putting them in order for the coming season. Although the trees are somewhat later than usual owing chiefly to the cold winter, it is surprising how quickly their buds expand immediately a spell of mild weather sets in. Very little pruning is necessary at this season of the year, provided the old fruiting wood was cut out immediately the fruits were harvested; what little pruning is necessary should be done forthwith. It is most important to observe cleanliness in both trees and houses, therefore, the trees should be thoroughly sprayed with an insecticide before fastening the shoots in position, and again just before the flowers expand, otherwise vaporise the house with a nicotine compound. The paint-work and glass should be cleansed immediately after the first spraying takes place, and the walls scrubbed before coating them with lime and sulphur. This preparation should be well worked into all crevices; to enable this to be done the mixture should be made into a thin paste.

Top-dressing the Borders.—Immediately the trees and house have received their final cleansing, and the work of tying the shoots is completed, proceed with the top-dressing of the border; but before doing so, remove a small portion of the top soil. If the borders are dry, they should be watered thoroughly, for fruit trees should not be allowed to suffer through lack of moisture at the roots even when they are dormant. This completed, apply a top-dressing of turfy loam mixed with charcoal and bone-meal. Cover this top-dressing with a thin layer of short manure, which will greatly assist the water to penetrate evenly into the soil. Keep the house as cool as possible, to retard growth, by opening the ventilators, night and day, until the flowers are about to expand.

Trees in Pots.—After the trees have been washed and their receptacles made clean, pot trees may be brought indoors and arranged at the usual distance apart. Trees that were overlooked in the autumn for repotting should not be disturbed at the roots now, for it is too late to re-pot them, but they should receive a rich top-dressing. Trees that were potted should have the surface soil removed, and be given a slight dressing of new soil. Keep the house quite cool.

THE KITCHEN GARDEN.

By F. STREETER, Gardener to MAJOR ALBERT PAM, Wormley Bury, Broxbourne.

Jerusalem Artichoke.—This crop pays for far better attention than is generally given it. Select an open site that has been trenched and well-manured, and so soon as the weather and state of the soil permits, plant medium-sized tubers three feet from row to row, two feet apart in the rows and six inches deep. The white-skinned variety has a more delicate flavour than the purple sort.

Asparagus.—Where the convenience for forcing Asparagus exists, fill sufficient heated pits with hot-beds made of three-parts leaves to one-part long litter. When the temperature of the bed has fallen to about 65°, place a light compost, consisting of one-part loam, one-part leaf-mould, and one-part old Mushroom-bed manure on the bed, and plant strong, forcing crowns, spreading out the roots evenly over the whole surface, and covering them with about four inches of the prepared compost. Maintain a moist atmosphere, and a temperature of about 60°, admitting a little air during favourable weather. This method is much to be preferred to the old system of forcing permanent beds.

Young Carrots.—Fill sufficient frames with leaves made thoroughly firm, and on the leaves place about four inches to six inches of finely sifted old potting compost. Draw shallow drills one foot apart and sow the Carrot seeds thinly and evenly. French Horn, Early Gem and Initimable Forcing are excellent varieties for this purpose. Plant a row of an early-maturing Lettuce between each row of Carrots; the Lettuces will be ready for cutting before the Carrots are drawn for use. Water the soil with tepid water and keep the frames close until the seeds have germinated. Keep a sharp watch for slugs, and also a too rapid increase in the temperature by sun-heat, admitting a little air on the leeward side of the lights when necessary.

Seakale.—The crowns of Seakale may be forced in boxes or pots according to requirements. A Mushroom house is undoubtedly one of the best places in which to force and bleach the plants, but forcing may also be done under warm greenhouse stages, provided light is excluded. Water the roots with tepid water at all times. It will be advisable when preparing for forcing to cut off and prepare the planting thongs, tying them in bunches of fifty and placing them in boxes of sand or fine soil in a cold house in which they will start into growth.

PLANTS UNDER GLASS.

By JOHN COUTTS, Assistant Curator, Royal Botanic Gardens, Kew.

Freesias.—As these plants pass out of flower they should not be neglected if it is desired to grow them on for future use. After flowering them they should be stood in a cool house or cold frame, where they should be given regular attention as regards watering and feeding, to build up strong corms for next season. As the foliage matures and shows signs of dying, water at the roots should be withheld gradually. It is not generally known that Fresias may be raised from seeds and flowered the same season. The seeds may be sown during February or March in a cool house, and with proper treatment the resulting plants should flower the following November. As the seedlings suffer a considerable check from transplanting, the best method is to sow the seeds direct into five-inch pots, afterwards thinning the seedlings to about twelve in a pot. The compost should consist of good loam mixed with sufficient sand to render it open and porous. Freesias should be grown in perfectly cool conditions at all times; they respond to liberal feeding when they have well filled their pots with roots. The shoots should be given timely support, for if they are allowed to fall over they never grow freely.

Forcing Plants.—A sufficient number of plants for forcing, according to the requirements of the establishment, should be introduced to the forcing house. It is a mistake to introduce the majority of these plants to a high temperature, as this generally results in failure, In the case of bulbs, they go blind, while shrubby plants are very apt to drop their flower buds. There are some few plants, however, such as Roman Hyacinths, Paper White Narcissus and Lily-of-the-Valley which may be placed at once in a high temperature without harm resulting. It is always wise, when dealing with forcing plants, to accustom them gradually to high temperatures by first placing them in a house, for a week or more, where the temperature is about 50°. Later they may be placed in a temperature of 60° to 70°. In selecting plants for forcing it is important to use for early-blooming species or varieties that naturally flower early, and as the season advances plants generally will naturally respond more readily to higher temperatures. Shrubby plants should be sprayed lightly several times daily until the flowers begin to show colour. The many beautiful varieties of Ghent Azaleas that are so useful for forcing, very quickly drop their flowers; this may be prevented by the use of floral gum, a drop in the base of each flower being sufficient. While Rhododendrons, including Azaleas and some other plants with good fibrous root systems, may be lifted directly from the ground and forced successfully, it is important that many woody subjects should have been pot grown. Such plants as Pyrus, Prunus and Lilac last much longer in flower if they are grown in pots.

HARDY FRUIT GARDEN.

By W. AUTON, Gardener to VISCOUNT ELVEDEN, Pyrford Court, Woking, Surrey.

Raspberries.—Those plantations which had the old canes cut out in the autumn and were left untied should now receive attention. First make sure that all the supports are sound, and see that the training is carried out to the best advantage. If more canes have been left than are necessary to furnish the space available, remove the weaker ones, allowing each cane ample room to develop its fruits. Where new plantations were made in the autumn, the canes should now be cut down to within about nine inches from the ground. If, owing to delay in planting operations during the autumn, contemplated new plantations were not made, these may still be formed when soil conditions are favourable. For this purpose, young stools furnished with two or three strong canes of last summer's growth should be chosen. These may generally be obtained in sufficient quantity from an old plantation, as an abundance of young shoots is always thrown up from established plants; preference should be given to the stools with good fibrous roots, discarding those with naked, woody ones. Trenches should have been well prepared four feet apart, and the stools may be planted about two feet apart in the rows. After all surface work is completed, both old and new plantations should be given a mulch of decayed manure. Raspberries grow best in a rich, friable loam, and in making plantations on light, poor ground, liberal quantities of organic manure should be incorporated with the soil, and a sprinkling of coarse bone-meal may also be added.

Nuts.—These make a desirable adjunct to the dishes for the dessert table over quite a long period of the year, and are particularly valuable where the household is comprised largely of young people. They thrive in almost any well-drained soil, and frequently succeed where other fruits are unsatisfactory. Planting may still be carried out, and if the soil is very poor it should be enriched with organic manure when preparing for the plantations. The distance between the trees may be ten feet each way, and the bush method of training is generally the most convenient, although they may be grown as standards if desired. When bushes have been formed, they will consist of six or eight branches forming a head. The leading shoots of these branches need to be shortened, more or less, at every winter pruning, with the object of causing the branches to develop laterals over their whole length. The final height of these branches may be from five or six feet upwards, at the will of the grower. The buds containing the female flowers are rather more plump than the wood buds, but the flowers do not appear until considerably later than the male flowers borne on the familiar catkins. If there is an abundance of catkins, which is usually the case, pruning may be completed this month, but if catkins are scarce, it is wise to defer pruning until the female blossoms have been expanded for a few days. In exposed positions, severe frost sometimes injures the catkins, and where this has occurred branches bearing catkins should be taken from more sheltered positions and fixed amongst the bushes where catkins are scarce, as a paucity of pollen means uncertainty in crop.

THE FLOWER GARDEN.

By F. C. PUDDLE, Gardener to LORD ABERCONWAY,
Bodnant, Taly-Cafn, North Wales.

Seed-Sowing.—When Begonias are used for bedding, it is a good plan to raise a number of seedlings periodically to replace the older tubers. The seeds should be sown in pots of light soil and placed in a house having an average temperature of 65°. Lobelias and Verbenas may also be sown and placed in the same house, but so soon as the seedlings are large enough to handle, they should be pricked off and removed to slightly cooler quarters. East Lothian Stocks, Campanula pyramidalis and Delphiniums of the Blue Butterfly type (Fig. 30), require a long season of growth, and early sowing is essential. Delphinium Blue Butterfly is a dainty plant in flower, and being of dwarf habit, is suited as an edging subject in borders. A recently started fruit house is perhaps the most convenient place in which to germinate the seeds of these three plants, but the seedlings should be grown under cool conditions to promote sturdy growth. Meconopsis and hardy Primulas are best sown so soon as the seeds are ripe, but if they have been kept for spring sowing, they should be inserted immediately, and germinated in a temperature of 50° to 55°. If the Primula seeds do not germinate within six weeks, they will probably not do so before next autumn or spring; in such cases the pots may be removed to cool frames, and, later, plunged to the rim in ashes in a shady place out-of-doors.

Rhododendrons.—The introduction of many new species of Rhododendron from China and Thibet, has produced a new era in the cultivation of Rhododendrons, and opened a wider field for hybridisation. In many gardens the raising of seedling Rhododendrons has now become an important feature, and as the result of experiments, various mediums in which to sow the seeds are recommended, chief amongst them, peat moss and a species of woodland moss. Although by the use of such moisture holding materials germination may be accelerated, any advantage gained is usually discounted by the check which ensues when the seedlings are transferred to ordinary soil. When considering the merits of the various methods of seed-sowing, it is well to bear in mind that all plants resent drastic changes of soil, and none more so than Rhododendrons. Consideration should therefore be given to the soil in which the adult plants will eventually be grown, and a proportion of this should be included in the compost provided for the seedlings from their infancy. At the same time, it should be recognised that leaf-mould is the natural rooting-medium of the majority of plants, and especially those of the woodland; therefore, in the earlier stages of growth this moisture-holding material should form the greater part of the compost. At Bodnant, where the collection of Rhododendrons is grown in loam, the compost used for sowing the seeds and for the first pricking out of the seedlings consists of leaf-mould, three-parts; loam, one-part; and silver sand, one part. As the plants increase in size and are put out in nursery beds, the quantity of loam is gradually increased, until they become accustomed to the soil in which the main collection is growing. In the case of species, the time of sowing is governed by the arrival of the seeds from the collectors, but seeds of hybrids may be sown immediately they are ripe, in gentle warmth, and the seedlings grown on in a house having an average temperature of 50° to 55°, with free ventilation at all times.

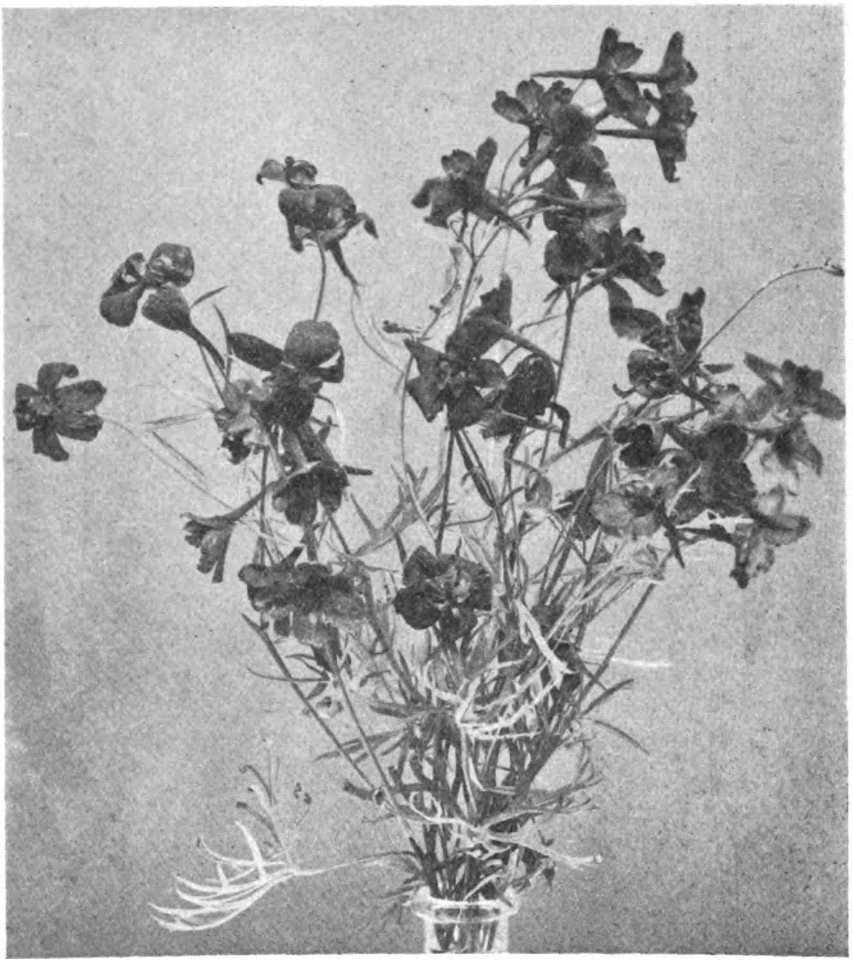

FIG 30.—DELPHINIUM BLUE BUTTERFLY.

FOR NORTHERN GARDENERS.

By A. T. HARRISON, Gardener to the MARQUIS OF
AILSA, Culzean Castle, Maybole, Ayrshire.

Seed-Sowing.—Many varieties of flower seeds should now be sown to obtain the best results, and if only one or two kinds are mentioned that is only an indication of others that may be treated likewise. Sweet Peas, sown in pots now and grown in cool conditions, will make good specimens to plant out in well-prepared trenches towards the end of April. Antirrhinums etc., sown now, will make a display later out of all proportion to the expense involved. Begonias, Gloxinias, etc., sown now in a fairly high temperature, will produce useful flowering pot-plants during August and September.

Gloxinias.—Corms of Gloxinias which have been dried off should now be shaken clear of the old soil and placed in boxes of leaf-mould in a warm house. Keep the corms just moist, applying water sparingly until young growth is in evidence, or the corms may decay. When the second pair of leaves have developed, the plants should be placed in pots of a suitable size. Use a rough, open compost mixed with plenty of good leaf-mould; do not press the soil too firmly, and return the plants to a house having a brisk temperature.

Planting of Shrubs and Trees.—The planting of deciduous shrubs and trees should now be concluded with all speed whenever outside conditions permit. It is too early to transplant the evergreen members, but much may be accomplished during frosty weather by clearing intended sites of undesirable specimens, and carting or wheeling fresh soil, leaf-mould, etc., to the places where they will be required to be ready at hand when planting begins. If the soil is well drained, the sites for choice evergreens may be prepared by deep digging.

IRIS GARDEN.

IRIS UNGUICULARIS.

In a recent note in *The Gardeners' Chronicle* I commented on the extraordinary floriferousness of this beautiful Algerian Iris during the present season and suggested that apparently the greatest factors in bringing about this result are partial starvation and dryness at the root. This production of flowers has continued and increased since the date of my note to such a remarkable degree that the behaviour of the plants seems worth recording. While the border supplied about half-a-dozen flowers weekly during the month of October, we had two or three dozens weekly in November. In spite of a period of weather with abnormally low temperature, this number of flowers was well maintained until Christmas.

That the conditions prevailing during this period were not particularly conducive to growth is strikingly shown by a study of the average mean temperatures recorded here during the eight weeks preceding Christmas. These readings are :—beginning with that of the week ending November 7, and followed in succession by those of the next seven weeks :—50.1°; 36.4°; 40.8°; 37.1°; 34.1°; 40.3°; 34.5°; 36.5°. Nevertheless, during this period more than two hundred flowers were gathered. With the return of kindlier weather conditions, the flowers began to increase at a marvellous rate in the last week of December till a weekly output of about five hundred had been reached, and on January 5, I counted four hundred fully expanded flowers on the border, and the total production to that date exceeded a thousand flowers.

To make it clear to readers what this output means, it will be necessary to give the area of the border and some details of cultivation may also be interesting.

The border is three hundred feet long but only twelve inches wide, and is situated at the foot of a south wall. The plants have been growing in the same position since 1909, and were last disturbed in 1921, when the old plants were lifted, divided and replanted immediately after the flowering period, that is, about the beginning of April. The plants were thoroughly watered and mulched after planting, and under normal conditions no further watering would have been given, but owing to the abnormal drought of that season, two subsequent waterings were necessary between April and midsummer, after which date no further waterings were given. During subsequent years neither watering nor feeding have been practised.

A collection of climbing plants is grown on the wall, many of which are exceedingly good specimens, overhanging the Iris to a considerable extent and lessening the amount of water accessible to them from normal rainfall. Immediately in front of the foot-wide border is a paved path, four feet six inches wide, and on the other side is a herbaceous border. The climbers find their nourishment at considerable distances from the wall and probably the roots of the Iris ramify under the paved path, but it is obvious that this species likes the dryness, warmth and comparative starvation of the position. *W. Auton, Pyrford Court Gardens.*

HARDY FLOWER BORDER.

GILLENIA TRIFOLIATA.

This charming border plant, although long introduced to cultivation and obtained easily from most hardy plant nurseries, is not common in gardens. Why it is not more frequently cultivated it is difficult to surmise. It is not exceptionally showy, but its flowers are exceedingly pretty, while the slender, graceful, yet sturdy habit of the plant itself leaves little to be desired. Its stature is about twenty-four inches, so that the plant is suitable for the small border, and its ability to grow well in shade or partial shade, as well as in sun, is greatly in its favour. The small, white flowers tinged with rose or pink are produced freely.

Although the plant will grow in a situation exposed to the sun, if planted in a sunny position the border should not be too dry, or the plant will not reveal its true beauty. Propagation is effected by division in spring or by seeds, which are procurable from a few seed firms in the British Isles. The seeds may be sown in pots or pans in March or April under glass, or later in the open in sandy soil. The seedlings may be put in their permanent positions in autumn or spring. *S. Arnott.*

LOBELIA CARDINALIS QUEEN VICTORIA.

This is a subject which should be planted freely in the late summer border. Used in combination with Salvia patens and Phlox Tapis Blanc it is always admired, and is perhaps the most vivid, yet refined scarlet flower obtainable.

The cultivation of the plant presents no difficulties, yet many fail to grow it well. The clumps should be lifted from the border during October, and after the old flower spikes have been shortened to within a few inches of the base, planted closely together in a cold pit or frame. The soil should be kept on the dry side during the winter, but by March it should be moistened to have the plants ready for putting out early in April.

If the plants grew with average vigour during the previous summer it will be found possible to divide each old stool into several pieces at the time of planting out. If it is desired to increase the stock considerably, practically every shoot may be utilised for the purpose. These should be placed in boxes of sandy soil, watered and kept somewhat close. When established the plants should be hardened off gradually and planted in the border a few weeks later.

A good, medium, loam suits this half-hardy perennial, the beautiful bronze foliage of which is always attractive in the front of the herbaceous border. Some very fine forms, as well as a variety of shades of colour may be obtained from a packet of seeds of the hybrids. *Charles Hodgson, Acton Place Gardens, Acton, Sudbury, Suffolk.*

FLORISTS' FLOWERS.

DECORATIVE CHRYSANTHEMUMS.

At this time of the year, when flowers are scarce, it is very disappointing to find that certain of the late varieties of Chrysanthemums fail in some cases to produce satisfactory blooms. Occasionally, these defaulters are as satisfactory as could be wished, but at times, for some reason or other, the care and attention which have been bestowed upon them for a whole season are entirely lost.

The reasons generally attributed for the failure is either not rooting the cuttings sufficiently early, or through lack of attention in not giving the plants sufficient stimulants during the latter part of the growing season. Probably either or both of these reasons may account for the trouble, but after experiencing these disappointments, I am inclined to think that it are due to weakness of the variety.

Unfortunately, that otherwise excellent variety, Enfield White, is subject to this weakness, but as it is so good when it does flower, one can hardly discard it.

Among the more dependable varieties may be included The Favourite and its two pink and cream sports : A. J. Balfour, Mme. R. Oberthur, Helena Williams, Mdlle. Louis Charvet, General Nogi, a mauve-pink variety with good strong stems and foliage, Baldock's Crimson and Winter Cheer.

All three of the " Favourites " may be depended upon to produce a large quantity of bloom, even when rooted so late as the end of March.

Amongst the decorative Japanese varieties with long stems flowering in mid-season there are some of outstanding merit, such as Blanche du Poitou, Cream Poitou, M. Julian Valet, Yellow Valet, Sunshine, Golden Marvel and Marne. *T. B.*

RUST ON CHRYSANTHEMUMS.

A simple and sure remedy for rust on Chrysanthemums is paraffin oil used at the rate of a wineglassful to two gallons of water. I have cured three collections of rust in this manner.

When the plants are in their flowering pots and stood in rows four or five feet apart so that each plant can be well syringed, I put a wineglassful of paraffin in two gallons of water, fill the syringe and drive the syringeful back into the pail. Before the oil has time to settle on the surface, I fill the syringe again and spray the mixture on the plants. Every second syringeful is driven back into the pail to mix the paraffin with the water ; this is important.

I have never known any harm done by this specific ; in fact, I think it does the plants good. The plants should be syringed on alternate evenings, weather permitting.

A certain amount of rust will probably appear the following season, but it will eventually die out if this method is persevered with. *Alfred Simeson.*

ALPINE GARDEN.

ERIGERON LEIOMERUS.

Erigeron leiomerus is a delightful subject for a choice, " close-up " ledge in the rock garden or scree. It is one of the smallest members of its race, a New World species, native of the heights of Utah, where it is sometimes intensely cold.

This Erigeron is perfectly hardy, but the drainage should be thorough and full exposure is desirable. It makes a neat little mat of fresh green, rather spathulate, almost hairless, leaves, and above this the inflorescences rise in spring to a height of some three inches. The flowers are a beautifully soft, cool lavender, and about one inch across. In association with a pale yellow-flowered plant, such as Helianthemum Tuberarium or Alyssum montanum, the lovely colouring of the flowers of the Erigeron will be still more appealing.

CORYDALIS CAVA.

This is the earliest of the Fumitories to appear, its finely-cut, glaucous leaves often beginning to show above ground before the Snowdrops. It is a shade lover and appears to delight in cool, mossy corners in woodland. In such places it has, at any rate, done well with me for many years, and it never fails to send up its four-inch heads of purple flowers in early spring. The variety alba is, however, an even more attractive plant when in blossom, its elegant sprays suggesting Roman Hyacinths in the purity of their waxen whiteness and, what is more, in their sweet fragrance, the latter being an uncommon attribute in this genera. Moreover, white is a colour—if the term can be used—which is more in keeping with the first hints of spring than purple, which seems to belong to later days. *J.*

THE ALPINE COLUMBINE

The long-spurred Columbines of hybrid origin are so delightful in every respect that we are liable to overlook the merits of some of the natural species ; Aquilegia alpina is a case in point, yet as a consequence of cross-fertilisation most of the plants grown as Aquilegia alpina are poor and lack much of the charm of the true species. It is a common cause of complaint amongst those who know the genuine A. alpina that the plants in gardens are usually lacking in the intense caerulean blue, and are sometimes even without the large and numerously-lobed flowers of the true species. To keep the seedlings true, the plants should not be grown near other Columbines. I know of a garden in which hundreds of true A. alpina are to be found growing in stony soil, and in richer ground the plant seeds and sows itself so freely that the Columbines require to be cut down ere the seeds ripen to prevent the appearance of seedlings in countless numbers. A close examination of the plants revealed not a single " rogue," not even the one with a white centre, which is reputed to be a variety of A. alpina, but is in reality a hybrid. The best way to establish the true A. alpina is to purchase a small plant in a pot, or seeds, from a reliable firm who will give a guarantee that the plant or seeds are of the true species. *S. Arnott.*

PRIMULA MARGINATA AND ITS HYBRIDS.

I think that of all the European rock Primulas, Primula marginata is the most attractive and the most generally useful in the rock garden. I have found it very abundant in the Maritime Alps, and always as a rock or cliff dweller, usually forming a fringe on the brows of cliffs or of big rocks, on the tops of which humus and vegetation have accumulated. And to accommodate it to this situation in life, it has developed a trunk-like habit, the trunks often slightly branched, and carrying at the tips of the trailing branches, rosettes of leaves. These leaves are very distinct and beautiful. The edges are variously toothed or waved, sometimes deeply and handsomely, and sometimes only slightly, but always the leaf margins are richly edged with a clear line of silvery white meal. The plant is deciduous, losing all its leaves in autumn, the tip of each branch or "trunk" where leaves and flowers had been, resolving itself into a bud for next year's display.

This trunked habit is natural to the plant, but it usually distresses the unthinking rock gardener, especially if he has never seen the plant growing wild, or has not realised that it is the plant's natural habit. It is often stated by writers on such plants that P. marginata is apt to grow leggy, and that to overcome this fault the plant should be top-dressed. In my opinion, this alleged fault is not a fault, but the natural habit of the plant, and need not be discouraged. In fact, I have always thought that the so-called leggy habit of all the trunk-forming Primulas—Auricula, viscosa, hirsuta, and the pubescens hybrids—is, up to a point, an advantage rather than otherwise, in that the trunk carries the leaf rosette well above the soil and out of reach of damp and rot.

Primula marginata is one of the earliest species to flower, often opening its heads of lovely blossoms in March and April. The flowers are carried in a loose head or umbel, five or six or more on a three- or four-inch stem. They are funnel-shaped, deliciously fragrant with the scent of Cowslips, and in colour they vary from cool lilac, rosy-lilac, to lilac-blue and violet, with very rarely white. They vary much, too, in size.

The finest hybrid yet raised from Primula marginata is probably P. Linda Pope. It is an old plant in cultivation, though I do not know how long ago it was raised, nor what was its parentage. But it is still a rare plant, having for some time been half forgotten and more than half neglected. It is not possible to increase the stock of P. Linda Pope rapidly, and one cannot force the pace with it. It is imperturbably hardy and quite easy to grow, flourishing in any good rich loam, and flowering regularly and magnificently. But the production of side shoots cannot be hurried. It is just a case of leaving the plant alone and taking such offsets as it methodically gives, and by this means steadily doubling the numbers year by year. P. Linda Pope must therefore always remain an expensive plant. A few years ago I received P. Linda Pope under two other names. It came to me as P. Lemoinei and as P. Mrs. Hall Walker. How it came by the former name I cannot imagine, but one may suspect that the latter name may have been manufactured by some enthusiast during the brief career of the late Tulley nursery. Both varieties were tried here, and a couple of years were enough to leave no possible doubt that they were our old friend, Linda Pope, re-christened. Primula Linda Pope may best be described as a P. marginata with extra big, strong leaves, deeply and boldly toothed and notched at their edges; with a superb white margin. The very large flowers open flat and solid; they are white centred, of a most exquisite soft lavender-mauve, and as fragrant as those of P. marginata itself.

Then there is that aristocratic hybrid of marginata, P. Marven. This, too, is, I believe, an oldish garden plant, and its parents are known, viz., P. marginata × P. venusta, as indicated by its name. This is a lovely plant, though less magnificent than P. Linda Pope. The leaves are smooth edged, and smaller than Linda's, though white edged. The flowers are smaller, more the size of the funnel-shaped blooms of a normal P. marginata, but they are of a very beautiful rich blue-violet, with a central zone, which upon examination is seen to be a powdering of snowy meal. Primula Marven is of the same easy growing disposition as Linda Pope, and alas, as slow of increase and about as late.

I have recently been doing a little hybridising among P. marginata and its hybrids, and have one or two definite results already achieved, as well as a crop of promising hybrids developing. The greatest success so far is a cross between P. Linda Pope and P. pubescens Juleika Dobson, which has been christened P. Barbara Barker, after the infant daughter of Mr. Frank Barker. Primula Barbara Barker flowered for the first time in 1925, was shown at the R.H.S., and received an Award of Merit. The plant is dwarf in habit: the leaves show a little of the wavy edge of its P. marginata parentage; the flowers are very large and perfect in shape, and of a delicious soft lilac. Its other parent, P. Juleika Dobson, is another hybrid of my own raising, and has received the R.H.S. Award of Merit. The other seedling from this cross flowered last year, but did not show its true form. But it is a magnificent variety, with big, solid flowers, almost pure white. It is to be called P. Duchess of York. I have had better success with Linda Pope as a seed parent, in crossing, than I have with P. marginata, the wild type. In fact, although I have made a great many crosses on to pure P. marginata, I have not hitherto secured any seed. However, I shall try again this spring, for when she does consent to be a parent of crossed offspring, marginata seems capable of producing most lovely seedlings.

Both P. marginata and its various hybrids are excellent rock garden plants, hardy, permanent and exquisitely beautiful; they are equally valuable for growing in the alpine house, where the powdering of white meal on leaf and flower reaches its most brilliant development, and where the delicious scent may be enjoyed to the full. In the rock garden they enjoy a raised position among rocks, and a fairly sunny position. For soil they like just the rich well-drained loam that Auriculas and most other Primulas enjoy; they are in no way fussy and they like lime. *Clarence Elliott, Stevenage.*

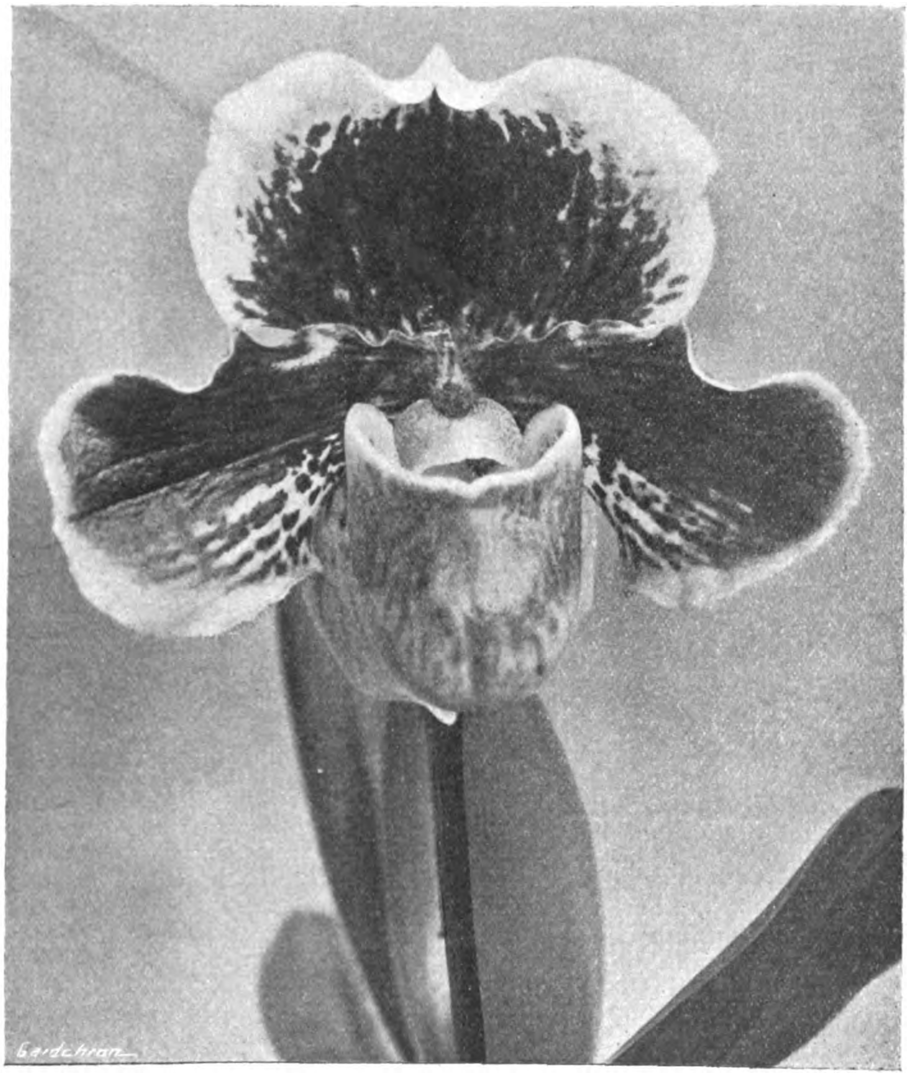

FIG. 31.—CYPRIPEDIUM MARMION, HOLFORD'S VAR.

R.H.S. First Class Certificate January 12. A handsome hybrid, remarkable for the deep wine-red colour on the dorsal sepal, and rich red-brown on the petals. Shown by Sir George Holford, Westonbirt (see p. 52).

TREES AND SHRUBS.

ZANTHORHIZA APIIFOLIA.

THIS native of the eastern States of America has peculiar purple flowers, which develop a little in advance of its pinnate "Celery-like" foliage; it forms a most interesting subject for the front of a shaded border. It is a deciduous plant with a creeping rootstock from which arise erect stems two feet or so in height, and it is from the terminal buds of these stems that the drooping panicles are produced. They consist of very numerous and minute flowers of a brownish purple shade, very neatly arranged, and of an almost feathery appearance and lightness.

A few years ago these flowers were used here with charming effect to form the tracery on the dining table, where their lightness and delicate beauty were enhanced by the snow-white linen on which they were laid.

Z. apiifolia is easily increased by division during the spring. Its creeping roots spread in all directions, but not so rapidly as to become a nuisance, and useful clumps may be lifted to form fresh plantations without disturbing the older plant very much.

As the common name of Yellow Root implies, the roots are a bright yellow colour. Although this plant was introduced so long ago as 1766, it has never become very common in gardens. *A. T. Harrison, Culzean Castle Gardens.*

GARRYA ELLIPTICA.

THIS Californian evergreen is a decorative shrub for the winter garden; its wavy-margined leaves, about the size of those of the Bay Laurel, are a deep, lustrous green, and the catkins of the male plant (the species being unisexual) are sometimes as much as a foot long, those of the female being very much smaller. These male catkins are silver-grey, beautifully tapered, and hang in a most elegant manner from the leaf-axils at the tips of the branches. They generally appear in late autumn, and in districts where the shrub grows freely, branches bearing these very ornamental tassels are used in Christmas decorations, and thus have some commercial as well as aesthetic value.

G. elliptica is indigenous to the northern part of California and Oregon, and is much hardier than many subjects from these States. It delights in the humid climate of our more westerly counties, while in many other and colder parts of the country it may be grown successfully against a wall or in sheltered woodland. Though it does not object to shade, and will often do well under deciduous trees, a sunny position is best, and it will succeed in a well-drained loam of average quality.

When it is realised that G. elliptica has been known in gardens for close on one hundred years, it is surprising that a shrub of such merit should still be comparatively uncommon. In favourable conditions it will make a well-rounded bush up to ten feet in height and as much through, and much taller specimens may be seen in the south-west.

This is one of the many Pacific Coast shrubs introduced by David Douglas, and the generic name was bestowed upon it by him in memory of his friend Nicholas Garry of the Hudson Bay Co., one of the founders of Fort Garry, now the city of Winnipeg.

RHODODENDRON GREIVEI.

SAID to be a R. ciliatum × R. glaucum hybrid, the subject of this note is one of the most delightful of dwarf Rhododendrons. To some extent it inherits a likeness to both its parents, making a low, rigid, little bush, the evergreen leaves being some two inches long and barely half as wide. These are pale green but, like those of R. glaucum, they often take on a dull golden-buff tone in winter. The pendent, bell-shaped flowers are yielded very abundantly in spring and they are of a very charming shade of delicate pink.

Though not a novelty, R. Grievei is seldom seen, and apparently it is still rare. This seems odd for it is a very beautiful little shrub, hardy, and easy to grow in any soil that suits Rhododendrons. It flourishes with me in a cool bed of well-drained loam in the part shade of woodland, some old leaf-mould only being given at the time of planting.

RHODODENDRON WILSONII.

OF the several useful Rhododendron hybrids for which we are indebted to the North American R. punctatum, R. Wilsonii is perhaps the most charming. Its longer, narrower and more pointed leaves in a soft olive-green, and the less rigid and much more graceful habit of growth seem to me to afford it a distinction and beauty not shared by R. arbutifolium or R. myrtifolium. Its pale rose flowers, borne in good sized trusses are also rather larger than those of the other two hybrids mentioned, each bloom being about one-and-a-quarter inch across.

Being very adaptable, R. Wilsonii may be grown on the bolder parts of large rock gardens, grouped among other dwarfs, or alone in the open woodland or Heath garden. I have several specimens among Heathers in ground that gets exceedingly dry in summer, yet they hold their own with their companions, flower profusely, grow rather slowly (which is an advantage under the circumstances) and never suffer from drought. As R. Wilsonii is usually on its own roots, it possesses a great advantage over many others when the planting is done, as I have suggested, where supervision in regard to suckering would prove irksome and out of place. *A. T. Johnson.*

AMERICAN NOTES.

CARNATIONS OF MERIT.

ONLY a few really good Carnations are being introduced in the United States this season as raisers are becoming yearly more discriminating and hesitate to put on the market anything which does not seem to be at least the equal of standard varieties. Nothing on the list is the superior of Laddie as a salmon-pink and Spectrum as a red; these two varieties are both well-known on your side, and were raised by the well-known Dorner firm of Lafayette, Indiana; they command a higher price in the flower markets here than any others. Whether Spectrum will stand the test very long, is, I think, doubtful; it is rather lacking in stem and red is not a very saleable colour here except at certain holidays.

William Sim, of Cliftondale, Mass. (who is a Scotsman, by the way) is the largest grower of Carnations in the east, and has raised some excellent seedlings; one, named Royal, is of a pleasing royal purple colour; another, Arctic, has large, pure white, very fragrant and splendid-keeping flowers; these sorts are now being introduced. Mr. Sim has quite a number of other good seedlings, some of which are of orange, apricot and other rather unusual colours. The American retailers seem to be "glued" to a few shades of colour like white, dark, medium and light pink, and in a much reduced way, yellow, red and variegated; they rarely offer anything outside these shades, and rather give Carnations the cold shoulder in favour of Roses.

C. B. Johnson, of Woburn, Mass., is another very successful raiser of seedlings; his Johnson's Crimson is probably the finest of its colour to date. A very fine white sort, awarded a silver medal in Boston, is Ivory. The same grower has some excellent pink, scarlet and variegated seedlings to come. Red Laddie is known in England, but is not sufficiently bright to be very taking. We have virtually no yellow but Maine Sunshine here; I thought that Saffron, as I saw it in England last summer, better. Betty Lou, as a pink, seems to be doing well with many.

The annual convention and exhibition of the American Carnation Society will be held in the Horticultural Hall, Boston, on January 28 and 29; this, it is believed, will set a new high record for American Carnation exhibitions, both in numbers of flowers, quality and artistic arrangement. In the past, particular growers here have been very backward, usually putting fifty or one hundred blooms in large wide-mouthed receptacles, with no effort at arrangement. Staged in this way the commercial growers have felt that they could study the blooms better and decide how many hundreds or thousands they would buy for the coming season. The Carnation, however, is far less popular here as a cut flower than the Rose, and growers are beginning to appreciate the fact that the great amateur, buying public are not impressed by these inartistic displays.

I had the pleasure, while in Great Britain last summer, of seeing some of the large Carnation establishments, including those of Mr. W. E. Wallace, Mr. C. Engelmann (almost as well-known here as on your side), Messrs. Lowe and Shawyer, and Messrs. Allwood Bros., and was agreeably surprised to see the high quality of their stocks; as seen in August, the flowers were nearly equal to what we get here in mid-winter, and I have no hesitation in stating that your best growers are somewhat ahead of ours in America, and they certainly pack flowers for market much more carefully than we do. Your growers pack all the best flowers in single layers; here the flowers are tied in round bunches of twenty-five each, and are subjected to much rough handling. I think our growers may be able to teach you some things, but when it comes to marketing their flowers they are very far behind British growers. Carnations do not appear in our markets all the year round, as with you; there are none in July, August or September, while in June and October they are very small and short-stemmed, and practically for half the year they are either not to be had at all or of indifferent quality.

NEW AMERICAN ROSES.

One or two really fine new hybrid Tea Roses are being sent out this winter. Briarcliffe, which originated with Paul Pierson, Briarcliffe, New York, is a glorified Columbia, of brighter colour and not throwing the so-called "bull head" flowers so characteristic of Columbia. It has won very high encomiums from all who have seen it exhibited or growing. Another variety from the F. R. Pierson Co. is Mr F. R. Pierson, a red, something in the way of the well-known American Beauty (Mme. Ferdinand Jamain), now fast passing out as a forcing Rose. Roselandia, the new orange-yellow from your side, is being made much of as a forcing Rose.

The dominant forcing red Rose to-day in the U.S.A. is Templar, raised by the Montgomery Co., Hadley, Mass., and sent out a year ago. I saw a big house of this at Hadley in November, with 60,000 flowers coming on, the great proportion of which would come in for Christmas. Many of these blooms would be cut with three feet to four feet stems. This noted firm, which has given us so many fine forcing Roses, had 10,000 seedlings under glass, raised from seeds the previous January, and containing some beautiful varieties; one was similar to Mme. Alexander Dreux in colour, but much fuller; others resembled Souv. de Claudius Pernet, which holds high rank here both as a forcer and as a garden Rose; still others appeared to be pinks, the superior of Columbia; and there were some glorious reds. This firm is very discriminating and never introduces anything which has not had an extended trial and proved to be ahead of existing varieties. Red Premier is well thought of here; it is really not red coloured but a very deep pink and blooms with remarkable freedom.

I believe mid-winter Roses are not produced much in England on account of your lack of winter sunshine, but allowing for that, I have an idea that if your growers would build large wide, light houses, such as we have here, and would use steam heat as Mr. Engelmann is now doing at Saffron Walden, you could produce just as good flowers as we do. You have shown that you can do it with Carnations, you can beat us with Chrysanthemums, and I look to see British Rose growers (under glass) giving American specialists a close run in the very near future. *William N. Craig, Weymouth, Mass., U.S.A.*

INDOOR PLANTS.

SWEET-SCENTED WINTER-FLOWERING PLANTS.

There are numbers of sweetly-scented plants that flower during the winter and early spring. Considering that perfume in plants and flowers is always appreciated, it is surprising how seldom the plants under consideration are seen in gardens at the present day. Most of them are quite easy of cultivation.

Mitrostigma axillare (syn. Gardenia) is, at the time of writing (early January), well in flower. It is a native of Natal and succeeds quite well in an intermediate or warm greenhouse. When planted out in a well-drained bed or border it makes a neat evergreen bush, some four or five feet tall. Cuttings of this plant root readily in a propagating case; they should be made from leading shoots, for although lateral growths root quite readily, such plants never form a leading shoot, but retain their lateral character. Young plants are best grown in a temperature of about 60°, but when in flower they may be placed in a warm greenhouse; they produce their white, sweetly-scented flowers during winter or early spring and excellent specimens for the stage may be grown in six-inch pots. The plant grows freely in a fairly light compost.

Acokanthera spectabilis (syn. Toxicophlaea spectabilis). This plant, commonly known as the Winter Sweet, is a native of Central and South Africa, and like the Mitrostigma is evergreen, succeeding when planted out in a stove or intermediate house. It is much larger, but may easily be kept within bounds by pruning; fine specimens may be grown in large pots or tubs, or in small pots for furnishing the stages in the intermediate or warm greenhouse.

Cuttings root readily in a warm propagating case furnished with bottom heat. The young plants should be grown on in a house having a temperature of about 60°. Any kind of good potting compost is suited to this plant. The white, sweetly-scented flowers are produced freely during winter and early spring, the period varying according to the temperature of the house in which the plant is grown. A. venenata is another South African species.

Daphne odora (syn. indica) is a better-known plant and a great favourite owing to its deliciously scented flowers, but it is seldom seen in good condition as it is by no means an easy plant to keep in good health for any considerable length of time in pots. Large specimens are by no means uncommon out-of-doors, growing against warm walls in Devon and Cornwall; even there it is usual to give the plants the protection of a mat during frosty weather. This plant is not happy under pot cultivation, and should be planted out in a well-drained bed or border in a cool greenhouse. Specimens in small pots are useful for the stages, and such plants are grown in limited quantities by a few growers for market. The Sweet Daphne is generally regarded as being difficult to propagate, and it was the practice of former growers to graft it on stocks of some of the hardy species. It is, however, not difficult to propagate if half-ripened shoots are secured from plants growing indoors. The cuttings are best inserted singly in small pots, standing them under a bell glass in a greenhouse, or in a case provided with slight bottom heat. This Daphne succeeds best in a compost of good, medium loam, with the addition of a little fibrous peat and sand. Efficient drainage and careful watering are necessary at all stages of growth.

Luculia gratissima, a native of the Himalayas, produces large trusses of beautiful pink, deliciously scented flowers in winter. It is one of the most beautiful of cool greenhouse plants, but it is by no means common. It is difficult of propagation, although from time to time a few trade establishments have enjoyed the reputation of propagating it readily and in quantity. Occasionally one sees it stated that this plant is easily propagated by means of cuttings, a statement which deceives no one who has any experience with it. Cuttings are best secured from the smaller, twiggy shoots that are produced after the plant has been cut back. They should be inserted singly in small pots filled with sandy soil, and plunged in a case furnished with bottom heat. The leaves should on no account be allowed to flag, and it seems to make a difference if the leaves are kept upright by tying them to a stake. This is one of the plants that seem impossible to be grown successfully for any length of time in pots; it should, therefore, be planted out in a well-drained bed in a cool greenhouse, where, if it lives long enough, it may attain to a height of twelve feet.

After flowering, towards the end of January, the plant should be pruned and kept on the dry side at the roots until it starts into growth again. It is somewhat subject to attacks of mealy bug, white fly and Begonia mite, all of which must be guarded against. Sometimes lateral growths may start below the inflorescence; if these develop before flowering they should be rubbed off. In the neighbourhood of London, fogs often ruin the flowers.

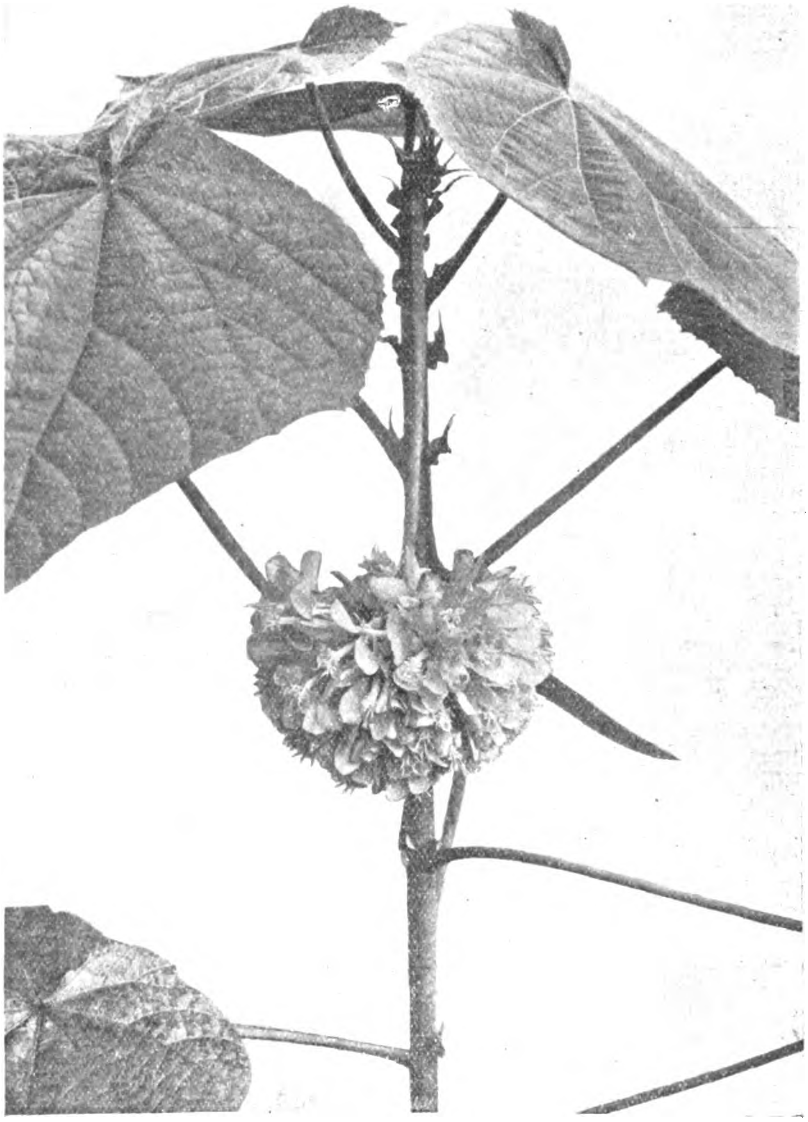

FIG. 32.—DOMBEYA SP. (D. GLANELIAE ?).

R.H.S. Award of Merit, January 12. A robust, warm-house shrub, with large, handsome leaves and round, pendant clusters of bright, pink flowers. Shown by Lord Glanely, Chippenham.

(see p. 53).

Buddleia asiatica (syn. B. Neemda), a native of the East Indies, is an old garden plant introduced so long ago as 1894, and is still uncommonly scarce in gardens. Its long, slender sprays of small white flowers are most delicately scented.

B. officinalis is a more recent introduction from Western China, whence it was introduced by Mr. E. W. Wilson in 1908. It has lilac-coloured flowers with yellow centres, the strong honey scent of which appeals to some individuals. This Buddleia makes a stiff, bushy plant which, however, lacks the grace of the older species.

B. asiatica is propagated by means of cuttings in a close case with slight bottom heat. Twiggy shoots should be selected for this purpose, as the stronger shoots are liable to damp off. Plants rooted during March, if stopped twice during the growing season, will make bushy specimens for the plant stage their first season, but they are seen at their best the second year. When the one-year-old plants have flowered they should be shortened and potted on as they require it into eight-inch or ten-inch pots. Well-grown specimens attain a height of five feet to ten feet. The ends of the shoots and laterals terminate in long sprays of fragrant flowers. During the summer the plants are best plunged out-of-doors in an open, sunny situation.

B. officinalis succeeds under the same treatment but is a much easier plant to propagate and cultivate. Both species grow freely in any good potting compost.

Eucharis and Gardenias may be had in flower during the winter and spring, but they are not cultivated to the same extent as formerly. Other sweetly-scented winter- and spring-flowering plants are Roman and other Hyacinths, Paper-white Narcissus and other Tazetta varieties; Jonquils, Freesias and Lily-of-the-Valley, all so well-known that they need only be mentioned. *J. Coutts.*

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LILIES IN 1925.

THOUGH the year began and ended in inauspicious fashion, the Lily season of 1925 in the south of England only just failed to be a great one. The failure—such as it was—to reach perfection, and the success of the season were both due to the peculiar character of our climate.

It has often been said that Lilies are children of the sun, and the truth of that trite observation was never more clearly demonstrated than in the year which has just brought the first quarter of the century to a close.

Except that the northerly and easterly winds had not quite that rasping quality which made the early months of 1924 almost unbearable, the weather of the first quarter of last year was very much the same as that of its predecessor. There were odd days in each of the first four months during which our island was dominated by continental winds, when the birds—always the first to discover and announce such days—sang from the depths of their hearts; but in the main, it was a shrivelling time in the south. So shrivelling, indeed, that May Day found plant life unusually backward and Lilies so belated that not one of the Californian species was above ground. To those with intimate experience of the genus in the garden, and always on the *qui vive* for the first sign of the plants above ground, such exceptionally tardy growth seemed ominous; but so little do we know of Nature's ways, so slow are we to learn, that what then seemed of ill augury was really only Nature's way of preparing a *coup*. She continued her preparations in such leisurely fashion that even a brief burst of summer in the middle of May found those same Californian Lilies still below ground, and it was not till the end of the month that the first green "points" of L. Parryi, L. pardalinum and the rest, and the bronze points of L. Humboldtii magnificum ended a period of suspense which only keen cultivators of plants can appreciate.

Looking back over the period and remembering how thirsty Lilies are when in growth, it seems possible that the lack of rain in May may have had as much to do with the slow growth of some Lilies as the chilly winds and generally cheerless weather; but that it did not affect them all in the same way was evident from the fact that the European Lilies—always less at the mercy of our climate than those from North America and Asia—kept to the clock. In nine years out of ten, L. pyrenaicum comes into bloom in the Home Counties during the first week of June, and as a rule it is the first Lily to flower. In 1925 it changed places for the nonce with L. pomponium, and both were in flower while the Californian Lilies already referred to were only an inch or two above ground.

The first half of June brought real summer, but no rain; nor was there any during the second half, which was characterised by dull weather, overcast skies, cool, northerly winds and so meagre an allowance of sunshine that the average day temperature was nearer 50° than 60°F. Technically, the drought was broken in the south by a drizzle on Midsummer Day, but in many places it was hardly enough to lay the dust.

The hot weather for which the heart of last summer will be remembered began in earnest on June 29, with a change in the wind from north-east to south-east, and it held till July 26, when, after a widespread series of thunderstorms, the torrid heat and drought ended simultaneously. In this country we are accustomed to sudden and violent changes in the weather, but assuredly the most experienced gardener would be put to it to remember a change like that of July 26 and 27 last, when the day temperature, which for some time had been in the eighties, fell in a few hours to 55°F. Once gone, the hot weather never returned, and except for an odd day now and again, August was a cheerless month; September was worse, for in the first week of the month a cold snap brought heavy snow to Scotland and a brief, destructive frost to the south. October, on the other hand, lingers gratefully in the memory, for the first half was unusually sunny and warm. It completed the roasting and ripening of bulbs and wood begun by the heat of July, and no doubt laid the foundation of what we may hope will be a wonderful display a few months hence.

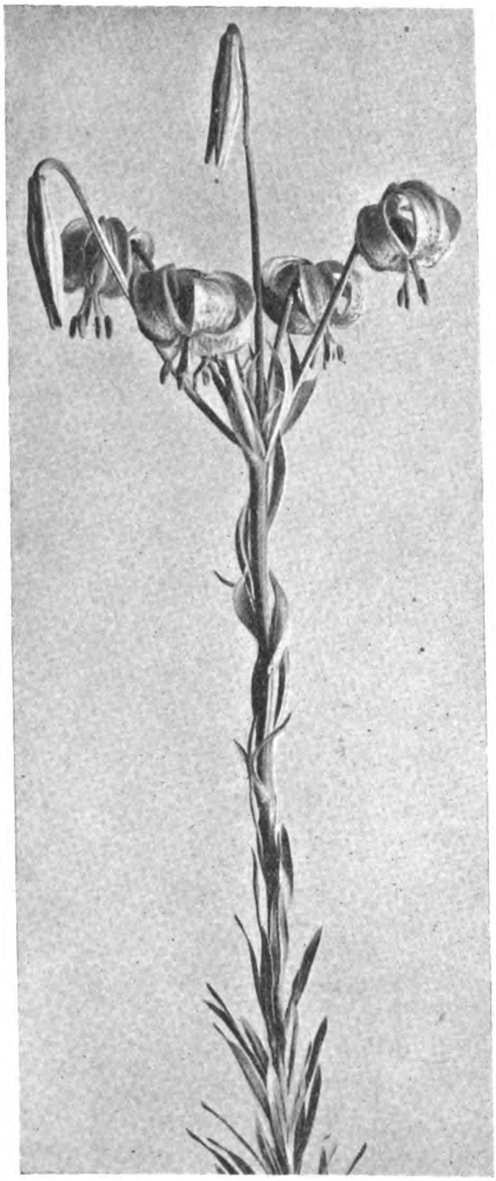

FIG. 33.—LILIUM CHALCEDONICUM VAR. MACULATUM IN MR. FRANK JONES'S GARDEN AT LECHLADE, 1925.

The roasting heat of July had an exhilarating effect on all Lilies, except L. candidum, which by then was so deep in the clutches of Botrytis as to be beyond recall. On all sides the ravages of this disfiguring disease were only too apparent, and nowhere was the tragedy more noticeable than in the famous semi-circular bed of the Madonna Lily between the Palm House and Greenhouse at Kew. It will be a red letter day for horticulture when science finds a prophylactic and a cure for this most foul disease, which makes astonishing headway in such cheerless weather as prevailed throughout the late spring of 1925. For a few years after its introduction, it seemed as if the wild form of L. candidum from Salonica might be more resistant to Botrytis than the garden forms, but the experience of last year seems to show that it enjoys no immunity.

Many other species were attacked by the fungus, but few fall victims so readily as L. candidum, and in the case of the other Lilies the sun made such short work of the mischief that cripples were few and far between. Except L. candidum, all the early and mid-season Lilies outdid themselves, and though the rains of early August, falling on a baked and parched earth, put new life into the late-flowering group, the weather of August and September was against them, so that, on the whole, they made no more than an average display. L. Sargentiae needs a hot August and found the chilly weather too much for it. L. Willmottiae, which flourishes in shade and is not so dependent on the moods of the sun, was hardly so floriferous as usual. L. pardalinum, on the other hand, has seldom been so good, and the same may be said of L. chalcedonicum which found the heat of July so much to its liking that quantities of the blooms were to be seen on sale in Covent Garden market—a very rare event. After an absence of some years, the variety maculatum is coming into cultivation again, and is proving a formidable rival to the type plant. It has rather more stature and may be of more robust constitution. The illustration in Fig. 33 shows the three "spurs" so characteristic of the heads of this variety and the type.

Where L. auratum was sheltered from the chilly winds it flowered well last autumn, but browned, withered and malformed petals too often caught the expert eye. L. tigrinum was better than most, and though obviously ill at ease in the coldest early autumn of recent years, L. philippinense var. formosanum made a brave show. The tall-growing form of this Lily, which we owe to E. H. Wilson, who found it in Formosa, did well last year; so tardy a plant is naturally the sport of a cold autumn, but the warm, sunny days of early October coincided with the flowering of this most elegant Lily and brought out its many good points.

Of the early-flowering group of Lilies, L. concolor was more at home in the torrid heat of July than it has been since 1921; it flowered well, and ripened a quantity of seeds, and the bulbs were so well roasted that if the coming summer is propitious, a good flowering is assured. This Lily, which is all too seldom grown in England, furnished a good example of the effect of the sun on the life of flowers. The blooms of a group of the species in semi-shade lasted for twenty-two days, while only eleven days elapsed from the opening of the buds to the falling of the petals in another colony, fully exposed to the sun.

In early June, L. pomponium was unusually floriferous, and the well-balanced head shown in the photograph (Fig. 34) was by no means unique. This plant of the Maritime Alps varies a good deal in size of flower, stature and foliage, and the differences do not seem to depend altogether on cultivation. It is customary to refer to the Lily illustrated in Fig. 34 as Lilium pomponium verum, but it is probably nothing more than a robust form of the wild plant, and is not to be confused with Maw's plant, which is probably not in cultivation now.

Though it grows well under glass, L. neilgherrense (Fig. 35) has never taken kindly to outdoor cultivation in England. It might be supposed that this turns on temperature more than anything else, but our wet winters are quite as likely to be responsible for failures with the plant. Mrs. Wigram Money writes that in their native hills these Lilies endure drought and severe frosts from November to March, but thence onwards to August or September are in almost swampy ground, with a temperature seldom exceeding 63°. It is the sodden state of the ground in our winters which makes the management of many exotic Lilies so troublesome.

On the whole, the harvest of Lily seeds was not bountiful, though a great deal better than in 1924, when both the crop and the subsequent germination were as poor as could be. As an instance, seeds of the 1924 harvest of L. regale, sown in the open in January and February, 1925, did not germinate at all, though seeds of this species usually germinate like Mustard and Cress. The same poor germination was noticeable, too, in vegetable seeds.

The year was not remarkable for the introduction of any new species of Lily, but will be remembered for the publication of Mr. E. H. Wilson's *The Lilies of Eastern Asia*—a monograph worthy of its author. Among minor features of interest in 1925 was the sale of flowering stems of L. speciosum at a few pence each by hawkers in the London streets on Michaelmas Day, and a wonderful exhibit of L. Duchartrei var. Farreri by Col. Messel at Vincent Square on July 14.

The comparatively hard weather of the first two months of the present winter will have done Lilies nothing but good because it will have kept the ground drier than it usually is in the opening stages of winter. The torrential rains of the post-Christmas fortnight are another matter, but they also will have done little harm because established bulbs of Lilies are "pointing" below ground by then, and even those planted in October will have taken root. Once the basal roots are active, Lily bulbs may be drowned for a time without hurt. But it will have gone hard with the bulbs of newly-imported Japanese Lilies which were planted in thousands before Christmas by innocent folk. *A. Grove.*

CLASSICAL AND LEGENDARY GARDENS.

I.—THE GARDEN OF THE HESPERIDES.

MAN'S age of gold is usually behind him. To this fact allusion is made by Milton in his delightful Ode :—

> For if such holy song
> Enwrap our fancy long,
> Time will run back and fetch the age of gold.

It were a pity to live always in the past ; and it is pleasing to find that while the Hebrew Scriptures open with a vision of Paradise, those of the New Testament are brought to a close with the promise of a better. We may still look for a golden age and a Paradise Restored. Among the many Edens with which ancient literature makes us acquainted there is probably none outside that of the Book of Genesis which is more familiar than the Garden of the Hesperides. We therefore place it in the forefront of our review of Gardens of Romance and History.

A moment's thought reveals a fact that is noteworthy. We think of gardens as late productions, the work of races far advanced in civilisation, and we usually associate them with toil and the sweat of the brow. But already in the very dawn of literature the garden finds a place ; and so far from being a field of labour, tilled by unwilling hands under the lash of a cruel task-master, the garden is a place of pleasure and delight. It is the abode of love, the retreat of Adonis or Venus, where flowers bloom and golden Apples grow. But since there is ever a serpent where there is an Eden, the early garden soon becomes the stage of passion. Where love is, and Apples of gold, there will soon be jealousy and envy. The fruits will prove to be Apples of discord. Rivalry comes into play, with consequent defeat and triumph, and so the gardens of the poets show themselves to be very real ; the true playgrounds of life as it ever was, is, and ever will be. Under the poetry and legend we find the deepest truth, and for this reason the old authors are worthy of our devoutest thought.

It is interesting to observe that the legendary garden was not in the East. Note the instructive words—Hesperides, Hesperus, Vespers, Eventide, the Sunset, the West ! Why not England ? Had the early Greeks some notion that, at the spot where the sun went down to his couch in splendour, there lay an island which was fit to be the abode of the gods ? What harm, if we fancy for the time that the garden was here ? For us this is more flattering than Madeira or the Canary Islands, where some would locate it.

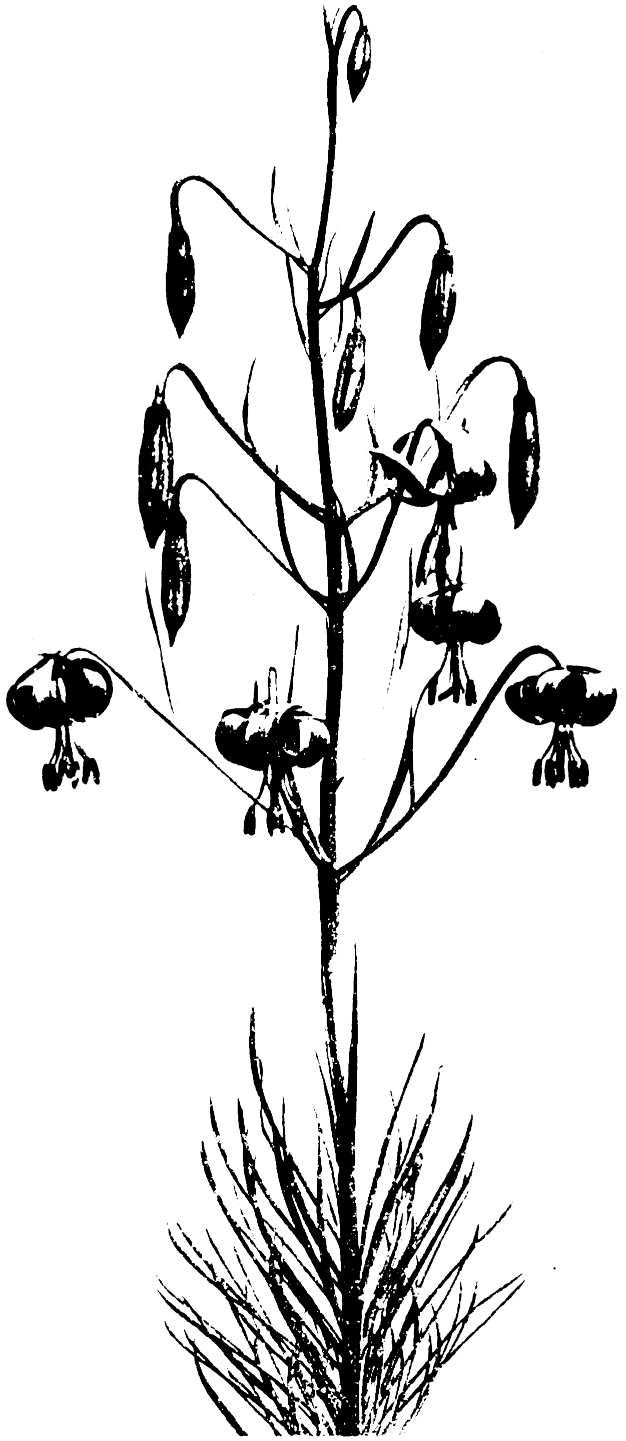

FIG. 34.—LILIUM POMPONIUM IN DR. AMSLER'S GARDEN AT ETON, 1925.

The earliest forms of the legend represent the nymphs known as the Hesperides as living on the Oceanus in the extreme west ; and, if our geography be correct, there is nothing further west than ourselves. According to Hesiod, moreover, these gardens were in an island of the western seas, and not on the continent. The Hesperides were the guardians of the golden fruits which this island garden grew, and they were aided in their work by Ladon, the Dragon. How true to life ! The Picts call in the Scots to assist them. It is the old, old story, illustrations of which are to be found in the historical archives of every land. And it is the task of Hercules to gain possession of the coveted fruits. The best things of life are only for the giants of the race. Best fruits are ever out of the reach of the child; best places can only be secured by prowess or daring, craft or cunning. This is no fable, though it passes by that name. The serpent in Eden, the dragon in the garden, Hercules needed to pluck the fruit—it is all true to life.

Mythologists have differed in their interpretation. Some years ago the school of the Solar Myth held the field. According to them (and here they were right) a garden implied a gardener. Genesis makes the Lord God the planter and Adam the keeper. The mythologists say, "the celestial gardener is at one time the moon, at another the sun, often represented as a dragon. The gardens of the Greeks and Romans were under the high protection of Hercules, perhaps because of the exceptional rôle played by him in the legend of the famous garden of the Hesperides which was placed in the region where the sun sinks to rest." That mode of interpretation has had its day, and now the historian and the master of commerce are trying their hands at an explanation. It is becoming more and more evident, as old records are unearthed, that from incredibly early times West and East were in constant communication. Egypt traded with Assyria, the Phoenicians abolished distance, the Etruscans made roads which served as a model for Rome, and it needed few links to forge a chain of commerce between the Cassiterides in the west and Cathay in the east.

There are bold spirits, therefore, to-day who affirm that in these so-called legends we are to find the beginnings of the history of world-wide commerce. This, of course, is courting the anger of the gods; yet, already in the days before Caesar and Cicero, I find Lucretius (born about a century before Christ) throwing out his challenge in these famous words: "And the serpent which guards the bright golden Apples of the Hesperides, fierce, dangerous of aspect, girding the tree's stem with his enormous body, what harm, pray, could he do us beside the Atlantic shore and melancholy main, which none of us goes near, and no barbarian ventures nigh? And all other monsters of the kind which have been destroyed, if they had not been vanquished, what harm could they do, I ask, if now alive? Methinks none." There is the true scientific spirit which is ever opposed to superstition and fear.

It was at one time the fashion to look on all these legends as perversions of the truth which was to be found solely in the Hebrew Scriptures. Such theories, now fortunately as antiquated as the Solar Myth, found expression in such fictions as the following: "The words Aitz-Peri mean a fruit tree (Genesis iii., 11), and from these two Hebrew words the famous gardens of the Hesperides (!) seem to have had their name. And from what passed in Paradise, concerning the fruit of the tree (Genesis iii., 3) between the serpent, the woman and the man, and from the promise that the woman's seed should bruise the serpent's head, the heathen appear to have derived those distorted traditionary stories of Hercules carrying off the golden Apples of the Hesperides, though guarded by a tremendous serpent or dragon whom he vanquished; and of the Massylian priestess in the temple of the Hesperides, who fed the dragon and preserved on the tree the sacred boughs. In Spence's *Polymetis* (Pl. XVIII, Fig. 8), we may behold Hercules, as represented in an antique, standing with an Apple in his hand before the tree, and the serpent twisted round it."

Ancient history and mythology are so intermixed that it is often difficult to separate the one from the other. Careful and well-informed students are able, however, very frequently to show the relationship between them. Thus a very able historian, commenting on a legend which is to be found in *Herodotus* (Book ii, ch. 55) tells us that in early ages commercial intercourse existed between India and Arabia, Ethiopia, Libya and Egypt. This was based on their mutual necessities and became the parent of their various civilisations. He adds that traces of this "are found in the earliest Greek mythology, in the fame of the Ethiopians and the hundred-gated Thebes, the myths of Jupiter, the Triton Sea, and the Garden of the Hesperides." The Greeks seem to have applied the term Hesperus to Italy, but the Romans do not appear to have accepted the designation. In the *Odes* of Horace it is also used of the neighbouring peninsula. Writing of Spain and Portugal, one author remarks that: "Numerous fertile valleys slope down to the shore where the rivers revive the vegetation. The stately Chestnut trees congregate in forest, and the cork and evergreen Oaks yield their bark and galls, as well as sweet mast, which is ground into meal, and like the Chestnut used for bread. Orange groves perfume the air with their flowers; and the golden fruit hanging at the same time from the boughs recalls the fabled garden of the Hesperides."

But what were the golden Apples which the dragon guarded and Hercules sought to obtain? That no one can tell. The word Apple is synonymous with fruit in general, but it may be taken to mean any desirable thing. If it be said that here the Orange must be intended, then history, philology, the origin and distribution of cultivated plants and fruits, with a score of other questions would need to be considered. One of the difficulties with which Hercules had to contend was ignorance of the locality, and that difficulty remains unsolved. He applied to the Nymphs to learn where the garden was to be found. Some writers think the Apples were the symbol of love and fruitfulness. I prefer to find here an illustration of the old-time method of writing history. Adventurers had sallied forth into unknown parts and brought back their travellers' tales, and these were duly handed down to posterity by oral means. Eventually they were committed to writing, but during the long traditional period names had undergone various changes, and statements were modified to fit in with the advance of knowledge, until eventually the old meaning was lost, and history became legend and myth.

We might re-write the story in some such fashion as this. Away in the west, where the sun sinks to rest, is a land where many precious things are found. To reach that land or island many dangers have to be met. The Gulf of Lyons is perilous to the mariner. The Bay of Biscay is seldom calm, and it is a Herculean task to reach those distant shores. Even when the voyage has been safely negotiated the natives have to be humoured. They will not give up their treasures—rich metals, precious woods, luscious fruits, beautiful women, fair-headed children—which are guarded jealously, save at great cost. Commerce is an enterprise reserved for the most daring souls, and all honour to the men who undertake such enterprises for their country's good. *Hilderic Friend.*

FORESTRY.

The Influence of Prolonged Daylight in the Vegetative Season on the Quality of Coniferous Timber Grown at High Latitudes.

(*Continued from p.* 49).

From the table published on p. 49 we have seen what are the relative values at the spring equinox in the northern hemisphere of the chemical intensities of the direct sunlight and of that reflected from the sky at the terrestrial latitudes mentioned. From this we may obtain some idea of the changes which take place in the intensity values at these latitudes as the earth moves in its path from the spring equinox to the summer solstice, and thence to the autumn equinox.

Before discussing this, however, reference may be made to another aspect of the matter which has a marked bearing on plant growth at the higher latitudes, namely, the relative amounts of sun heat received by a hemisphere of the earth in the summer and winter halves of the year respectively. It has been shown by the late Sir Robert Ball, contrary to an assumption based on an erroneous statement by Sir John Herschel that the summer and winter amounts were equal, that "of the total amount of heat received from the sun on a hemisphere of the earth in the course of a year, sixty-three per cent. is received during the summer and thirty-seven per cent. during the winter."* But these proportions apply, of course, to a hemisphere as a whole, and they give no indication of the way in which this excess of heat in the summer season is distributed over it at the various latitudes, or of its relationship to vegetation at these latitudes. In the vicinity of the equator the amounts received in summer and winter are about equal, and there plants receive their annual supply of light and heat in daily instalments of approximately twelve hours each all the year round, as would be the case all over the globe were the earth's axis perpendicular to the plane of the ecliptic. But, owing to the obliquity of its axis, at the poles the whole of the light and heat which reaches the earth at these parts is received in the summer half of the year. As we proceed from the pole to the equator the inequality lessens, the summer amount of sunlight decreasing and the winter amount increasing, until, when the tropics are reached, the seasonal distinctions practically disappear, and in the tropical zone the summer and winter proportions become approximately equal in duration.

It will thus be seen that, although the proportions of light and heat received by a hemisphere as a whole in the summer and winter halves of the year respectively are, as Sir Robert Ball has stated, sixty-three and thirty-seven per cent., the relative proportions received in summer and winter vary greatly from latitude to latitude. For example, at Assouan, Egypt, at the northern tropic (23½° N.), which is the farthest north latitude at which the sun is directly overhead in the northern summer, the difference between the longest and the shortest day of the year does not amount to quite three hours; at Oslo, Stockholm, and Leningrad, all of which are approximately on the 60th parallel of latitude, the difference is not less than thirteen hours, and for months there is no real night there, while at the pole the sun does not disappear beneath the horizon for six months annually. At the equinox, at these high latitudes the intensity of the sun's rays, on account of their obliquity, and the greater depth of atmosphere which they have to penetrate is, for equal periods of time, as we have seen from the table, much less than within the tropics, or even at less low latitudes. But, as Warming points out, "the development of plants depends not only upon the intensity but also upon the duration of the light to which they are exposed."†

At high latitudes, as contrasted with low latitudes, the day lengthens rapidly after the spring equinox, and the rate at which it lengthens accelerates as we approach nearer and nearer to the poles. For example, at the latitude of London (51½° N.) on April 21 the day is longer than it was at the equinox by fully 2 hours, on May 21 by about 3 hours, and on June 21 by about 4½ hours; and at the latitude of Edinburgh (56° N.) the lengthening for the corresponding dates is approximately 2½, 4½, and 5½ hours respectively. At the latitude of Leningrad (60° N.) on April 21 the day has lengthened by about 3 hours, on May 21 by fully 5 hours, and on June 21 by about 6½ hours. At Tornea, at the head of the Gulf of Bothnia (66½° N.), on April 21 it has lengthened by 4 hours, on May 21 by 7½ hours, and on June 21 the sun has become a circumpolar star; and at Altengaard, in Finmark (70° N.), which is about the northern limit of tree growth in Norway, the sun is a circumpolar star from March 21 to July 22, making sixty revolutions above the horizon in that time, so that the longest "day" there corresponds to a period of two months, and the longest night has, of course, a correspondingly long duration. The higher the latitude, the more rapid, of course, is the transition from winter to summer, and the effect of this rapid increase in the length of the daylight, and consequently in the temperature of the soil, after the vernal equinox is reached at these high latitudes, as compared with lower latitudes, is well exemplified in the case of annual crops.

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* *Cause of an Ice Age*, p. 90.

† *Ecology*, p. 17.

In Finland, all of which lies to the north of the 60th parallel of latitude, and the north of Norway, according to Warming, "Barley ripens its grain in eighty-nine days from the day of sowing, but in Schonen (in Sweden, 55°-57° N.) it requires one hundred days, despite the higher temperature and the more intense light; and the explanation of this must, in part, be that in the former places prolonged illumination promotes anabolism. In the north the periodic vital phenomena of plants set in much more rapidly in summer than in spring, because of the longer duration of the daylight. Arnell states that, going northward from Schonen, for each degree of latitude anthesis is later by 4·3 days in April, 2·3 days in May, 1·5 days in June, and 0·5 of a day in July."* Warming also states that "in Polar countries light is less intense and temperature lower, but their action or growth is subject to less intermission; the distinction between the temperature by day and by night becomes obscured. Intense light by day and cold by night co-operate at high altitudes in retarding growth; prolonged, though weaker, light and lower temperature in Polar lands have the same effect."† And, referring to the yearly periodicity of growth, Pfeffer states that "when prolonged periods of cold delay the renewal of vegetative activity, favourable conditions produce a more rapid response than if they were applied earlier. In this way arises the sudden outburst of foliage when a cold spring is succeeded by warm days at the end of April or in May."‡ At high latitudes this phenomenon is of annual occurrence on a grand scale, because, for a considerable time after the vernal equinox the larger proportion of the sun's heat is being used up in melting the vast masses of snow and ice which have accumulated in the winter season, and it is only after this has been accomplished that there can be any marked increase in the temperature of the soil and air, hence the rapid outburst of growth which immediately follows its disappearance.

The great forest region of Northern Russia, the largest expanse of uninterrupted Coniferous forest land in Europe, lies mostly above the 60th parallel of latitude, stretching almost to the arctic circle, and, owing to the much greater length of the day, coupled with the fact that there is no real night, in the growing season plant life there enjoys an immensely longer duration of daylight than it does in the lower latitudes of the north temperate zone. In the growing season there the rainfall is light, but the accumulation of snow (in which form by far the greater proportion of the moisture precipitated from the atmosphere occurs) in the long winter furnishes, when it melts under the influence of the summer sun, a sufficient supply of water for the use of the plants. In the past these Coniferous forests have been naturally regenerated, and there has been no tending of them. They have, no doubt, been ruthlessly exploited, and in the more accessible parts probably the best of the timber has disappeared; but in the interior of this great region, far from the exporting centres, there must still exist enormous tracts of fine forest of this sort. *A. D. Richardson.*

(*To be continued.*)

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* *Ecology of Plants*, p. 17.
† *Ecology of Plants*, p. 250.
‡ *The Physiology of Plants*, Vol. II., p. 206.

NOTICES OF BOOKS.

Insecticides, Fungicides and Weed Killers.*

THIS book of 431 pages contains a vast amount of information, in a concentrated form, for the use of manufacturing chemists, agriculturists, arboriculturists and horticulturists. Originally a French work, now in its second edition in English, it is the result of many experimenst in the field and laboratory, in many countries, and deals with the use of many chemicals, *bouillies* (French term for mixtures), and even hot and cold water. Diseases are due to physical, chemical and parasitic causes. It may surprise the ordinary reader to learn that the hearts of Cabbages, curds of Cauliflowers and sprouts of Brussels Sprouts are due to a disease named parenchymatosis, imparted to them by excessive nitrogenous feeding for several generations. When they revert to the wild condition of the Cabbage as a result of drought or starvation, that is a relative disease.

It will soon become evident to the observant reader that he or she must know something about the life history of the insect or fungus to be destroyed, and also the effect of the insecticide or fungicide upon the plant, if used in excess of that found to be permissible. Admonitions and warnings are of constant occurrence on this point.

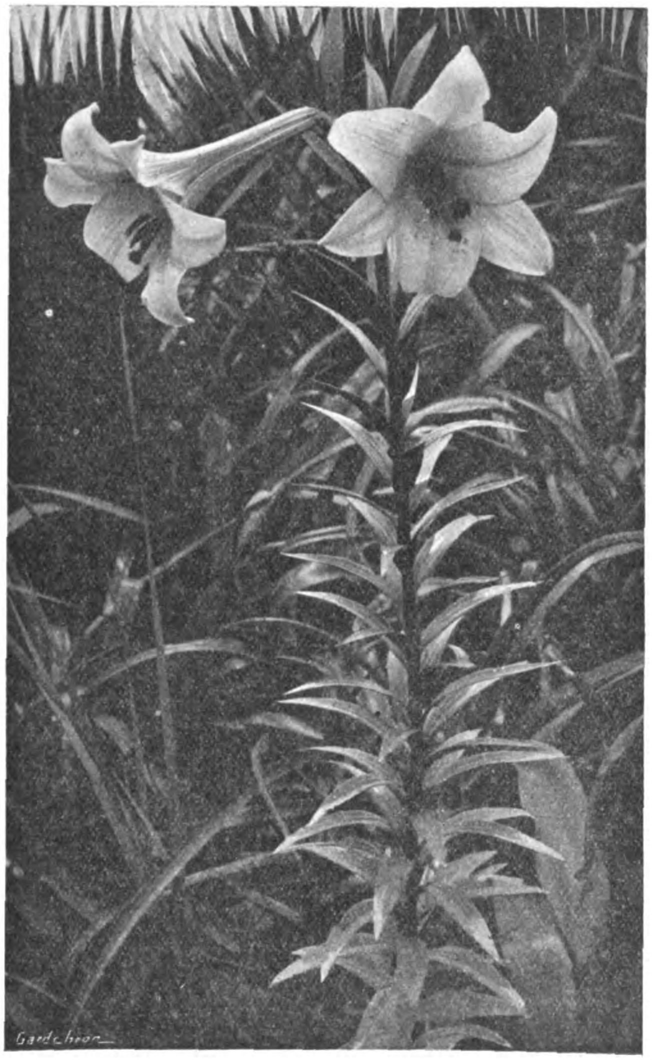

FIG. 35.—LILIUM NEILGHERRENSE IN MRS. BERRIDGE'S GARDEN AT OOTACAMUND, 1925.

(see p. 65).

The submersion of fields and meadows with water has been practised to kill cockchafers and other root-eating insects; of forests to kill cockchafers, Hylobius and other enemies of Conifers; and of vineyards to destroy phylloxera. All this must be limited within definite periods, especially in the case of fruiting vines that may have the quality of the crop greatly deteriorated by the submersion of the roots. Hot water may be used for killing insects and fungi at some temperature below the boiling point of water, and this varies with the sensitiveness of the fungus or insect, and the resistance of the foliage to heat. Seeds supposed to be coated with the spores of certain diseases may be treated with hot water. It should be a relief to many gardeners to know that caterpillars on the Cabbage tribe may be destroyed by water at a temperature of 131°F., because poisons must not be employed.

The uses of sulphur as a fungicide are many and varied, and every expert gardener knows how to contend with mildew in the vinery. It may interest him to know that 100,000 tons of sulphur are used annually in the vineyards of France. Many are the uses of potassium polysulphides; and liver of sulphur, in common use, is a mixture of polysulphides. Many instances are given of common and uncommon diseases of plants to which this remedy may be applied. Calcium sulphides (lime-sulphur) are less injurious to plants than potassium sulphides, because thay are not caustic. Insects are more sensitive to carbon disulphide than are plants, and directions are given for its use in certain cases. Many other chemicals, in use against plant enemies, are dealt with in a scientific way, those that are ineffective being indicated. Amidst a plethora of instructions the reader will be able to find what he wants by referring to the copious index, if he knows the insect, insecticide, fungus or fungicide with which he wishes to deal.

**Insecticides, Fungicides and Weed Killers.* By E. Bourcart, D.Sc. Second Edition, Revised and Enlarged by Thomas R. Burton. London: Scott, Greenwood and Son, 8, Broadway, Ludgate, E.C. 4. 1925. Price 15s. net

The book is well edited and contains few errors, but surely the American specialists were misquoted, where the rot of Potatos is said to be due to Oospora scabies: and Potato scab to an aerobic bacteria! The names of the causes of the disease might be transposed to advantage. There are eighty-four tables and thirteen illustrations in the text.

VINE BORDERS.

The proper treatment of the vine border in winter is an important detail in Grape-growing, for no matter what care is given to the vine the crop will not be a satisfactory one if the border is neglected.

There is no time like the present for putting the border into proper condition. The first item to be considered is efficient drainage; surplus water should be able to run readily through the soil, for stagnation at the roots is detrimental to vines and hinders their growth. Where the subsoil is clay, artificial drainage is necessary. A simple method of dealing with this difficulty is to make the bottom of the borders in V-shape, say two feet deep at the sides and gradually deeper in the middle until it is about three feet in the centre of the house. When the borders are made in this manner the water, after passing through the soil, will run to the lowest part in the middle of the house. It is a good plan to fill the bottom of the border with stones, clinkers or broken bricks to facilitate quick drainage. In the case of established borders that are badly drained, the only remedy is to make a trench around the border and fill in with builders' refuse, this making the border sweet and assisting the vines considerably.

The nature of the soil used in the border has a great influence on the growth of the vines and their crops. Old garden soil of a dark colour, due largely to the presence of a liberal amount of decayed vegetable matter, although perhaps splendid for other fruits, is not suited to Grapes, causing them to colour badly.

Soil that does not contain sufficient decayed vegetable matter is also unsuited to vines, for in such a medium the growth is small and the Grapes undersized. Dark, rich soil will, as a rule, produce plenty of growth, and with proper treatment, good sized berries, but the trouble is that the latter shank and colour badly. A soil of this nature should receive a liberal dressing of basic slag and sulphate of potash in the winter, at the rate of three-and-a-half pounds of slag to one pound of potash: all animal manures should be excluded. Soils that are deficient in decayed vegetable matter need the reverse treatment, that is, plenty of well-decayed manure. A good mixture is as follows:—Two barrowloads of well-decayed manure, two pounds of bone-meal, two pounds of superphosphate of lime, and one pound of sulphate of potash, which will be sufficient for each vine. For soils of a heavy, clayey nature, the following manures should be used. One barrowload of horse manure, two pounds of basic slag, two pounds of bone-meal and one pound of sulphate of potash: for sandy soils one barrow-load of cow manure, two pounds of bone-meal, one pound of sulphate of potash, and one pound of superphosphate: for chalky soils, one barrow-load of cow manure, three pounds of super-phosphate, one pound of kainit and one pound of hoof and horn manure to each vine.

Some little care must be given in the application of these manures. The first thing to determine is the position of the roots, for upon this depends the treatment. Remove the soil carefully from the roots of one vine, until they are all reached. It often happens that the roots near the vine are close to the surface, and some may be near the surface for several yards, or they may be growing deeply in the soil. The grower should endeavour to get them nearer the surface and keep them there. When the roots are reached commence to fill in with prepared soil, and spread the manure over the border with a fork, working it well into the soil. After the border is finished, the roots near the surface should be given a good mulching of manure, about two inches deep, and this should be retained until the Grapes start to develop colour. *G. B.*

FRUIT REGISTER.

APPLE ANNIE ELIZABETH.

Fruit growers are fortunate in having so many excellent varieties of late culinary Apples at their disposal for planting, as the exhibit made by Messrs. G. Bunyard and Co. at the last R.H.S. meeting demonstrated, the many first-rate culinary sorts they exhibited being in splendid condition at this late season of the year. The wealth of good sorts makes the selection for those who intend to plant late culinary Apples a rather difficult matter. Certain varieties, however, are not a success in some districts as in others, and growers should take care to observe the behaviour of particular varieties in their immediate neighbourhood. Those who plant Annie Elizabeth may have no fear of it being a success, for it is one of the very best late culinary Apples in cultivation. The fruits are large, those in the illustration reproduced in Fig. 36 being much reduced, and their contour is even, which is a desirable quality in a cooking Apple, as there is not much waste in removing the skin.

The fruits are very firm and solid and remain so until late in the New Year, for this fine Apple will keep until June. The skin is exceptionally attractive owing to the brilliant red colour which covers almost the whole of the surface. A peculiar feature of this variety is the hammered appearance of the skin, a character by which it may be readily recognised.

Bunyard in *A Handbook of Fruits* states that it is a valuable variety deserving of extended cultivation. The tree is a good grower with an upright habit, and when well established is a free cropper. The flesh is crisp, juicy, white, and as stated, of very firm texture, the flavour being brisk and somewhat acid. This late Apple was raised by Mr. Greatorex, at Leicester, and was introduced to cultivation by Messrs. Harrison of Leicester, who, in 1868, received a First Class Certificate for the variety from the Royal Horticultural Society.

APPLE BLENHEIM PIPPIN.

I have often heard the opinion expressed by well-known fruit growers that there are several types of Blenheim Pippin in cultivation, indeed, they are often spoken of as "seedling Blenheims." It would be interesting to know if these forms are really seedlings or whether they are merely sports.

Seeing that the variety Blenheim Pippin was not cultivated in nurseries until about 1818, it cannot be regarded as one of the oldest of Apples, for there are some which date back to Chaucer's time and perhaps longer.

That Apples undoubtedly sport is proved by the coloured forms of such well-known Apples as Bramley's Seedling and James Grieve.

It might serve a useful purpose if an institution, such as Wisley, planted as many of these so-called forms of Blenheim Pippin as could be obtained to ascertain if they are really distinct and whether any possess superior qualities in cropping, etc. *T.*

PEAR PRESIDENT BARABE.

I could name several late-ripening Pears, but not one equal to President Barabe for flavour at Christmas and the New Year. It is an invaluable variety, but requires the protection of a south wall in this county, and succeeds best when double-grafted on the Quince stock. *Wm. Allan, Gunton Park Gardens, Norwich.*

[The specimens sent with this note were of fine size, handsome appearance and excellent flavour, fully bearing out Mr. Allan's observations. Eds.]

HOME CORRESPONDENCE.

Polygonum baldschuanicum or P. Aubertii.—There seems to be confliction regarding the nomenclature of Polygonum baldschuanicum and Polygonum Aubertii. While one nursery catalogue describes the former as blush pink, and the latter as white, another gives the reverse descriptions, whilst still another gives both as white, P. Aubertii being regarded as a strong form of P. baldschuanicum. We have a quantity of P. baldschuanicum in this garden, and I have noticed that although mainly white, sometimes a tinge of pink is noticeable in the flowers, P. Aubertii, as I knew it, about four years ago, was quite white. When at Wisley last summer, I saw a plant in full bloom that was quite a distinct Peach-blossom pink, but could see no label. Perhaps some obliging lover of this plant would put me right on the subject, and, at the same time, I should be grateful to know where the true pink form can be obtained. It may be that the nature of the soil causes the pink tinge, as although we have two large groups of this Polygonum, far apart, only one shows the pinkish tint. *R. Gardner, Heywood Gardens, Cobham, Surrey.*

Does Frost Kill Insects?—There is a very general opinion amongst gardeners that frost kills insects. My own very limited observations on this subject tend rather to disprove this idea. One reads frequently that good hard winters are beneficial in that they kill insect pests. Is it not a fact that we often get heavy insect attacks following severe winters; *e.g.*, here in Yorkshire we had much frost during the winter of 1923-24, yet the summer of 1924 was a bad one for insect attacks, especially Gooseberry sawfly (Nematus ribesii). I should like to ask through the columns of *The Gardeners' Chronicle*: (1) Is there any real evidence that frost will kill insects? (2) What evidence have we that frost helps to control insect pests? May I be permitted to point out that observations and not opinions will help to clear up the matter. *G. C. Johnson, Leeds.*

Romneya Coulteri.—In reply to Mr. A. T. Harrison's request that other growers of Romneya Coulteri should give their experience of its habit of growth, I am glad to give mine, as this plant has puzzled me also. Some five and twenty years ago I obtained a plant under the name of Romneya Coulteri from Messrs. Backhouse, of York, for my garden on the estuary of the Dart, where it flourished exceedingly and sent out quantities of suckers which I found, if removed in April and planted elsewhere, grew at once, and formed new bushes. I left that garden, and, later, purchased another plant from Messrs. Thompson and Morgan, of Ipswich, for my present garden in the Isle of Wight. This plant has not sent out a single sucker (nor did my plant of R. trichocalyx). I believe there are two forms of R. Coulteri—one that sends out stolens, and one of simple bush form. I believe, too, that there is a difference in the matter of scent. No one, to my knowledge, has ever mentioned that the flower buds of R. Coulteri and R. trichocalyx are quite different—the latter's being globose, whereas those of the former are Pineapple-shaped, and were so in both of my plants. Both R. Coulteri and R. trichocalyx died in this garden; perhaps they do not like greensand. *C. M. B., Isle of Wight.*

——I read with interest the article on Romneya Coulteri on page 6 of *The Gardeners' Chronicle* for January 2, by A. T. Harrison. I also read the former article on page 428 (1925) by A. T. Johnson, and I can fully substantiate Mr. Johnson's mode of propagation, as for years I had a very fine plant of this beautiful Poppy in my own garden. It was planted in the shelter of an old tree of Dartmouth Crab, as I had been told it was not hardy in this district; but it threw such a quantity of suckers that—although beautiful—it became, year after year, more or less a nuisance as the suckers extended yards; they came through the Box edging, tangled themselves in the roots of the Crab, and even penetrated my gravel paths, although the foundations of these paths were old bricks laid side by side for solidity. Eventually I dug it up, and for two years the broken suckers still continued to thrive until I removed the brick foundation, when I found they had pushed themselves up through the holes in the bricks, almost as freely as Bindweed. Very fine plants from these suckers can still be seen in a well-known local nursery here, where R. Coulteri grows quite freely. If Mr. Harrison has any doubt as to my plant not being true R. Coulteri and will kindly furnish me with his address, I shall be most pleased to send him flowers and foliage for his inspection in due season. *Geo. Wyatt, Northernhay, Huntingdon.*

——In reply to Mr. A. T. Harrison, and with all due respect to his opinions and those of M. Correvon, I believe the Californian Bush Poppy I have here, and referred to as suckering freely, is R. Coulteri and not R. trichocalyx. Obviously, I cannot demonstrate its identity at this season in the only reliable way—by the calyx, but I have not any doubt whatsoever that this is devoid of the bristling hairs of R. trichocalyx. Further, I do not think that R. trichocalyx has the stature (seven feet) and bold upright form of my plant, most authorities agreeing that it is dwarfer and more spreading. As to the suckering, I am aware that this may not be a common feature in young specimens of R. Coulteri. That much I inferred in the note criticised by Mr. Harrison by stating that this species " suckers freely, especially when old," and to that I rigidly adhere. Mr. W. J. Bean, an authority on trees and shrubs, states (*Trees and Shrubs Hardy in the British Isles*) that the young shoots springing from the roots of old plants of R. Coulteri can be used for propagating, and that is precisely my own experience. *A. T. Johnson, Taly Cafn, N. Wales.*

Rainfall at Tirley Garth in 1925.—Rainfall at Tirley Garth Gardens, Tarporley, for the year 1925, amounted to 33.03 inches, or 1.63 inches less than in 1924. The heaviest rainfall occurred on May 19, when 1.59 inch was registered. June was the driest month of the year with only .10 inch. In May the rainfall amounted to 5.07 inches, this being the wettest month in the year with twenty-one rainy days. There were 198 days on which .01 of an inch or more was registered, and 153 in which .04 or more was registered. The driest spell was from the 1st to the 15th of June, when we had fourteen clear, dry days. The hottest day was on June 10, when the temperature rose to 90° in the shade. The coldest days were on December 1 and 22, when 14° of frost were registered. From December 6 to the end of the year there was rain almost every day. *James B. Allan, Tirley Garth Gardens, Cheshire.*

Garrya elliptica.—In his note on this shrub (page 6), Mr. Harrison refers to the legend that the brothers Adam adapted from its male catkins the characteristic feature which occurs so frequently in their mural decoration. It is true that these catkins would have served very well as a model for that particular design; but it is impossible that any of the three brothers Adam could have so employed them, for as much as William Adam died in 1748, Robert in 1792 and James in 1794; whereas it was not until 1828 that Douglas introduced Garrya elliptica to this country from north-west America. *Herbert Maxwell, Monreith.*

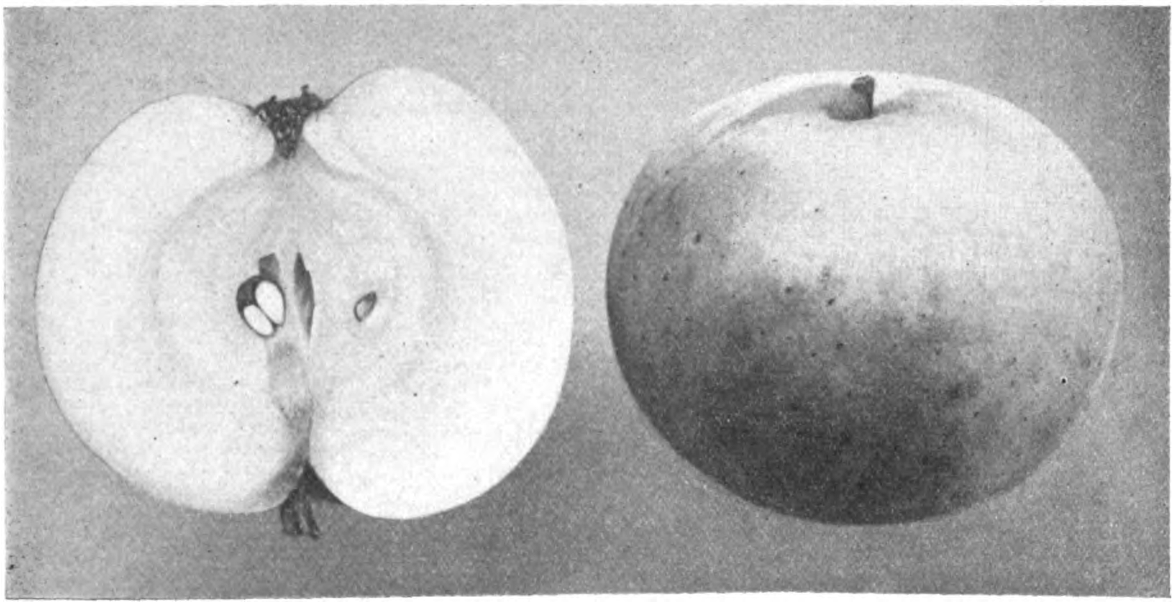

FIG. 36.—APPLE ANNIE ELIZABETH.
(see p. 68).

PUBLIC PARKS AND GARDENS.

THE East Barnet Urban District Council has under consideration a letter from the agents of Mr. W. A. Vernon on the question of land in East Barnet village for a recreation ground.

BOGNOR Urban District Council has confirmed the making of a provisional offer of £8,000 for the purchase of The Den, Upper Bognor, as pleasure and recreation grounds.

THE Urban District Council of Camborne is considering the provision of recreation grounds at Troon and Tuckingmill.

THE Glasgow Parks Committee propose to demolish the lodge at the main entrance gate of Loch Lomond Park, and to erect a new one. It is recommended that four additional tennis courts be constructed in Alexandra Park and Glasgow Green, and that the footpaths in George Square be laid with granolithic, and the centre with natural mastic rock asphalte, at an estimated cost of £5,000.

THE Urban District Council of Solihull has received sanction from the Ministry of Health to borrow £4,800 for purchasing part of the Malvern Park Estate, Solihull, for use as a public recreation ground.

SOCIETIES.

GUILDFORD AND DISTRICT GARDENERS'.

THE President, Alderman W. T. Patrick, J.P., presided over a large attendance at the December meeting, 1925, when Mr. F. J. Chittenden, of Wisley, gave a lecture on " The Germination of Seeds," a subject which he made both instructive and interesting. Taking a Pea as an illustration, the lecturer explained that the seed contained two leaves, a stem and a root. It was in fact a small plant already made but awaiting development. The food material contained within it was food stored up by the parent plant to give the next generation a start in life, at a time when the young plant could not obtain food for itself. Coming to the matter of germination it was pointed out that plant life had much in common with animal life, and must have water, air and warmth. Expanding this theme Mr. Chittenden gave proof of his wide knowledge of the subject and held the attention of his hearers, who certainly left the meeting wiser than they came.

A striking tribute was paid to the lecturer by Mr. J. A. Kirkwood, an expert professional gardener, who, speaking to a vote of thanks, said that Mr. Chittenden had taught them a great deal that night, and in future he should give greater heed than before to the important subject of germination.

In closing the meeting Mr. Patrick made feeling and appropriate reference to the sudden and lamentable death of Mr. Dykes, the secretary of the R.H.S,, and on behalf of the Guildford Gardeners he undertook to convey to Mrs. Dykes an expression of sincere sympathy at the loss of her husband, and to the staff of the R.H.S. at Wisley.

READING AND DISTRICT GARDENERS'.

THE annual meeting was held in the Abbey Hall on Monday, the 11th inst., and was presided over by the President, Mr. Frank E. Moring. The annual report and balance sheet, as read by the hon. secretary and hon. treasurer, respectively, showed that the association was in a very flourishing condition. The meetings during 1925 had been largely attended, the lectures had been unusually good and the discussions well maintained. The exhibits, both in the competitive and non-competitive sections, had been well up to the standard. Finance, and membership were alike, excellent. The following were elected to the various offices for 1926 :—President—Mr. Frank E. Moring ; Vice-presidents—The Mayor of Reading, Mr. Leonard Sutton, C.B.E., J.P. ; Ald. F. B. Parfitt, J.P. ; and E. P. Foquett Sutton, M.B.E. Chairman—Mr. F. J. Green, The Gardens, Aldermaston Court ; Vice-chairman, Mr. J. R. Lloyd, University College Gardens, Shinfield. Hon. Treasurer—Mr. A. H. Leaver ; Committee, Messrs. H. Broomfield, G. Carter, W. Chislett, C. S. Clacy, A. J. Cobb, H. H. Cook, A. H. Dow, A. H. Finker, M. Goddard, F. Goodger, A. W. Gower, C. J. Howlett, H. C. Loader, T. Martin, C. Moulton, H. Reeves, F. Townsend, H. Wynn, J. Wynn and J. Young ; Hon. Secretary ; Mr. H. G. Cox —Assistant Hon. Secretary—Mr. E. J. Dore.

NORTH OF ENGLAND HORTICULTURAL.

Mr. Hebbert Frankling presided over the annual meeting of this Society, held at Harrogate in December last.

The secretary, Rev. J. Bernard Hall, presented the report of the committee which showed that notwithstanding increased expenditure, the Society concluded its financial year with total cash assets of £114 12s. The April show was well supported by the trade, but it involved a loss of about £25. The September show was a success, thanks to generous help from the Harrogate Chamber of Trade. Reference was made to Mr. W. W. Pettigrew's lecture on "Training Lads in Horticulture" (published in our columns), and to the progress made with regard to the establishment of a North of England Trials Station. After much preliminary work the R.H.S. called a conference at the Chelsea Show on the 20th May, and the proposal was keenly discussed by representatives from corporations and societies in the North of England and Scotland. The delegates from over the border were from the Royal Caledonian Horticultural Society (Edinburgh), the Royal Horticultural Society of Aberdeen, the Glasgow the West of Scotland Horticultural Society and the Horticultural Trades' Association. Delegates present from the North of England represented the Lancashire County Council, Manchester Corporation, the Department of Agriculture, The University, Leeds ; Leeds Corporation, and seven menbers of the N.E.H.S. Council. After deliberating among themselves, the delegates agreed to work in two sections. Unfortunately, the Scottish section has not been able to report progress, and in Scotland the feeling is general that the R.H.S. should take the initiative and conduct the trials. With regard to the North of England, it is satisfactory to report that the Education Committee of the Lancashire County Council reports that "the establishment of a station of this kind would be an advantage to growers in the North of England" and "they were prepared to provide land and other facilities at Hutton, near Preston," and "give the Society all possible help in the matter." Harrogate Corporation has continued its welcome interest, and has generously offered, at a nominal rent, sufficient land to commence operations, 550 feet above sea-level, close to a first-class meteorological station. An extension of the land would be possible in the future. A sub-committee of inspection was appointed at York Gala to visit the site. A favourable report drawn up by Mr. A. S. Galt, Horticultural Organiser to the Agricultural Committee of Yorkshire has been received, the sub-committee being satisfied as to the suitability of the land. It is quite evident that there is a consensus of opinion as to the absolute need for such a trials ground, and sufficient offers of subscriptions and donations have been forthcoming to encourage the N.E.H.S. to issue a special public appeal when the time is ripe. Owing to the tragic decease of Mr. W. R. Dykes, Secretary of the R.H.S., negotiations with the Council of the R.H.S. are in abeyance, and the North of England awaits their pleasure in the matter, since their co-operation is essential to success. Mr. W. G. Lobjoit, Controller of Horticulture, put forward a suggestion at the Trials Conference at the September show, namely, that the University of Leeds should supply the official scientific recorder for the trials, this being useful public work. This suggestion has been forwarded to the Department of Agriculture, The University, Leeds. Several prominent Fellows of the Royal Horticultural Society have visited the suggested site of the trials ground at Harrogate. Mr. Jos. Cheal has taken a keen interest in the matter, and Mr. H. L. Wettern, for many years amateur Rose champion of England, has generously presented the Council of the N.E.H.S. with plans and elaborate coloured sketches drawn up by Mr. George Dillistone, garden architect, of Tunbridge Wells.

After the report had been adopted, the chairman presented the Founders' Silver Plaque for the ensuing year to Mr. J. Mallender, of Scrooby, in recognition of his work as a raiser of Daffodils and his assistance to the Society. The retiring members of Council were re-elected, and nine others added to bring the number of members of Council to twenty-four. The additions are: Mr. A. S. Galt (Leeds), Mr. J. G. Besant (parks superintendent, Harrogate), Mr. C. W. H. Greaves (Knaresborough), Mr. H. S. Wainwright (Leeds), Mr. L. Radcliffe (Bradford), Viscountess Mountgarret, Lady Barren, Lady Cunliffe-Lister and Lady Peel.

Following a discussion of an educational scheme for horticulturists, the meeting closed with thanks to officers and chairman.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT.

At the monthly meeting of this Society' held in the R.H.S. Hall, on Monday, January 11, Mr. Chas. H. Curtis presided, and ten new members were elected. Seven members withdrew interest from their deposit accounts amounting to £26 17s. 5d., and three members over the age of seventy years withdrew sums amounting to £71 4s. 6d. The death of two members was recorded, and the sums of £122 0s. 5d. and £35 12s. 2d, respectively, were passed for payment to their nominees, while £17 19s. 1d. was passed for payment to one deceased lapsed member. Sick pay for the month on the Ordinary side came to £121 19s. 10s., and on the State section to £121 15s. 6d. ; maternity benefits totalled £9 10s. 0d. Grants were made to eight members of the State section for dental and optical treatment, amounting to £22 17s. 0d ; ten other cases were considered.

ROYAL HORTICULTURAL.

Trial of Turnips.

The following awards have been made to Turnips by the Royal Horticultural Society after trial at Wisley. The varieties in brackets are alike.

Highly Commended.

(Early Red Milan, sent by Messrs. J. Kelway and Son, and Messrs. Ed. Webb and Sons, Ltd. ; Red Top Milan, sent by Messrs. J. Carter and Co.) ; (Snowball, sent by Mr. Wiboltt and Messrs. Nutting and Sons, Ltd. ; Model or Snowball, sent by Messrs. R. Veitch and Son ; Covent Garden Snowball, sent by Messrs. Barr and Sons ; Snowball Improved, sent by Mr. Olsen ; Model, sent by Messrs. Watkins and Simpson and Mr. W. H. Simpson ; Model White, sent by Mr. Cullen and Messrs. Dobbie and Co.) ; (Early Red Top Globe, sent by Messrs. Cooper, Taber and Co., Ltd. ; Red Garden Globe, sent by Messrs. R. Veitch and Son ; Red Globe, sent by Mr. Cullen and Mr. W. H. Simpson ; Red Globe Selected, sent by Messrs. Dobbie and Co.) ; (Chirk Castle, sent by Mr. Cullen, Mr. W. H. Simpson and Messrs. J. Carter and Co. ; Chirk Castle Black Stone, sent by Messrs. Barr and Sons and Messrs. Dickson and Robinson).

Commended.

Extra Early Milan, sent by Messrs. R. Veitch and Son ; Early Milan, sent by Mr. W. H. Simpson and Messrs. Dobbie and Co. ; White Milan, sent by Messrs. Cooper, Taber and Co., Ltd.) ; (Early White Dutch, sent by Messrs. Dobbie and Co. ; White Flat Dutch, sent by Mr. Daehnfeldt ; Early White Globe Strap leaved, sent by Messrs. Cooper, Taber and Co. Ltd.) ; (Green Top Stone, sent by Messrs. Barr and Sons, Mr. W. H. Simpson and Mr. Cullen ; Stone Green Top, sent by Messrs. J. Kelway and Son) ; Yellow Maltese Improved, sent by Messrs. J. Carter and Co. ; Sunrise, sent by Messrs. J. Carter and Co. ; (Golden Ball, sent by Messrs. Cooper, Taber and Co., Ltd., Messrs. Kelway and Son, Mr. Cullen, Mr. Daehnfeldt, Mr. W. H. Simpson, Messrs. Watkins and Simpson, Messrs. Dobbie and Co., and Mr. Wiboltt ; Orange Jelly or Golden Ball, sent by Messrs. Ed. Webb and Sons ; Orange Jelly Selected, sent by Messrs. Barr and Sons ; Golden Ball Improved, sent by Mr. Olsen ; Golden Rose, sent by Messrs. J. Carter and Co.).

NATIONAL ROSE.

There was a good attendance of members at the annual general meeting of the National Rose Society held at Caxton Hall, Westminster, on the 19th inst. Mr. C. C. Williamson presided, and he was supported by the hon. secretary, Mr. Courtney Page; the hon. treasurer. Mr. S. A. R. Preston-Hillary ; Mr. E. J. Holland and Mr. H. R. Darlington. The ladies present included Miss Ellen Willmott, Mrs. H. R. Darlington, Mrs. E. J. Holland and Mrs. F. Courtney-Page.

There were also present Mr. Frank Cant, Mr. J. S. Harvey Cant, Mr. H. W. Drew, Mr. A. R. Bide, Mr. Walter Easlea, Mr. J. Cheal, Mr. W. E. Wallace, Mr. A. C. Turner, Mr. A. Johnson, Rev. F. R. Burnside, Mr. Sidney F. Jackson, Mr. J. N. Hart, Mr. W. E. Moore, Rev. J. H. Pemberton and Mr. George Marriott.

The annual report of the council, which was printed and circulated, was taken as read, and in proposing its adoption, the chairman referred to the loss the Society has sustained by the death of its Patron, Queen Alexandra, and then congratulated the Society on its continued prosperity. Mr. E. J. Holland seconded the adoption of the report in a characteristically pleasant speech, and said that the nominations being equal to the vacancies, there was no election for seats on the council. With regard to the paragraph of the report which reminded the members that the Society was always ready and willing to give advice on Rose matters, Mr. Holland appealed for moderation in such requests, because there was a certain danger of the secretary being overwhelmed, especially when, as had happened, one member asked thirty-nine different questions in one letter. It was more than likely, he said, that the autumn show would be held at the R.H.S. Hall again, because although on the two occasions when the show had been held out-of-doors they had been very successful, the council felt, that in view of the uncertainty of the weather so late in the year, it was tempting the fates too much, as a wet day would ruin the show and spoil the members' pleasure. Mr. Holland referred to what he felicitously termed the goodly heritage of the Society's publication, which contained, he said, a wealth of information obtainable nowhere else.

As the report was, presumably, open to discussion, and with it the Society's affairs, Mr. F. S. Harvey-Cant protested against the action of the council in transferring the Championship Trophy from the exhibition Roses to the decorative Roses. He contended that the change was not in the best interests of the Society and the Rose. The Trophy was no longer a "super-award for super Roses," but one for the exhibitor with the most decorative skill who need not be a first-rate producer. The change, he felt convinced, would adversely affect the affiliated societies, as they would follow the example of the N.R.S., and the result would be that, as few growers could furnish sufficient exhibits to attend the smaller shows, which depended on the trade for their displays of Roses, the flower itself would, in his opinion, suffer, as the change would unduly give fictitious value to the type of Rose which is attractive in a show group, but has little value in the garden. Mr. F. S. Harvey-Cant therefore proposed that the question of the allocation of the Championship Trophy be referred back to the Council. The chairman ruled Mr. Cant out of order, and said that the change had been agreed by the council. The Rev. J. H. Pemberton then stated that the change really opened the door to all Roses, and the Trophy might be won by any and not by one section of the Rose.

Miss Willmott remarked that she heartily endorsed the mention of the great interest Queen Alexandra had taken in the Society, and knew that Her Majesty had put attendance at the summer show before other affairs.

In submitting the "summary" of Accounts Mr. Preston-Hillary made reference to nearly all the items. Regarding the substantial increase in the receipts from subscriptions, he said the whole credit was due to the untiring efforts of the hon. secretary—a tribute in which all present heartily agreed. There was, he said, one outstanding account of £800, due to the printers, but as this was for publications shortly to be circulated he felt that it properly belonged to the present year. He deprecated any increase in the amount which had been spent in prizes, for he was of the opinion that the £866 odd was quite as much as the Society could afford.

Mr. H. R. Darlington seconded the adoption of the Summary of Accounts, and said that he felt that *The Rose Annual* was of especial value if only because it was the only means the Council had of addressing the 13,000 members. The *Enemies of the Rose* had been revised, and was of increased value. He expressed the opinion that there was a distinct need for greater office accommodation. He would like the Society to have a separate room for its fast-growing library, so that members could call and consult the books without disorganising the office work as at present.

The adoption of the report and summary of accounts was then carried without further comment, and the Dean Hole Memorial Gold Medal was presented to Mr. Courtney Page. In making the presentation, the chairman said that the council felt there was no one living who deserved the honour more than Mr. Courtney Page, who, he said, was, in his modesty, an unwilling recipient. Mr. Page has been a member of the Society for thirty-two years, and a member of the council for twenty-five years, and the present prosperity of the Society is largely due to Mr. Courtney-Page, who has worked untiringly on the Society's behalf. Mr. Courtney-Page, who was enthusiastically received, said that the present was, to him, one of the occasions when one would wish to say a great deal but felt unable to do so, but he thanked the meeting sincerely for the great honour.

As, according to rule, the officers had all been duly nominated and there were no other names presented there was no election, but they were all thanked for their services. Mr. Frank Cant then proposed a vote of thanks to the chairman, and the meeting closed, after which tea was provided for the members.

TRADE NOTE.

FOR the encouragement of children Mr. Clarence Elliott is offering this year a special collection of twelve packets of easily grown flower seeds, suitable for children's gardens. All are annuals, and each packet has a coloured illustration of the kind or variety and directions for growing. He is offering fifteen prizes for the best results obtained from this collection of seeds by children under fifteen years of age. The first prize consists of a spade, a fork, a hoe, a rake, a trowel, a hand fork, a watering can, and a gardener's basket. The second prize is like the first, but without the basket; and the third prize is like the second, without the watering can. There are also twelve consolation prizes. As it is impossible to judge the competing gardens the prizes will be awarded for the fifteen best sets of pressed specimens of six flowers grown by competitors from these seeds. The flowers, with leaf and stem should be pressed, and then mounted on a sheet of cardboard twelve inches long and nine inches wide.

ANSWERS TO CORRESPONDENTS.

APPLES FAILING TO KEEP. *Mrs. C.* The Apples are rotting from the attack of various parasitic fungi which cause the "ripe rots" of stored Apples. These fungi enter through small wounds in the skin of the Apple. Care should be taken not to bruise Apples when gathering them. Stored fruits should be examined frequently and the rotting Apples removed.

CONCRETE GARDEN PATHS. *B. C.* By the aid of a bag or two of Portland cement and a few barrow-loads of gravel and sand, a concrete path may be provided which will be neat, clean and durable. The method is simplicity itself. Take four parts (by volume) of clean sand and gravel, and mix thoroughly with one part of Portland cement on a non-absorbent floor or other surface. Afterwards add water gently and gradually, mixing all the time until a stiff paste is obtained. When set, this mixture will be concrete, and may be moulded into any desired shape. By the use of a little pigment, the concrete may be coloured any shade. For a plain concrete path, fix down each side a strip of wood about one-and-a-half-inch thick and three inches deep, and fill in with the wet mixture, levelling off with a "float" (a slab of wood with a handle). Should slabs be preferred, make a few plain, rectangular boxes, without top or bottom, and hinged so that they come apart easily. Fasten these down to a baseboard, fill with concrete, and leave for a couple of days; the slabs will then be ready. During bad weather these slabs may be made in an outhouse and stored for future use. If "crazy" paving is desired break the slabs into irregular pieces and lay them in a bed of cement mortar. Just one caution: Do not mix more concrete at one time than can be used within an hour, because in about that time it begins to set, after which it must not be disturbed. The secret of success in concrete work is thoroughness.

GARDENER'S HOUSE AND NOTICE.—*O. R.* Unless any special arrangement was made at the time of your engagement, either side could terminate your engagement on giving one month's notice, and this appears to have been given to you. You are not entitled, therefore, to claim any compensation and if your occupation of the house was part of your wages, you must, on the expiration of the notice, give up possession or your employer would be entitled to take proceedings in the County Court.

MUSSEL SCALE ON PLUM TREES. *J. A. E.* The Plum shoots are affected with Mussel Scale. Where only a moderate number of scales are present they may be removed by scraping the bark and scrubbing the latter with some strong specific, such as caustic alkali. In using this strong chemical the hands should be protected with a pair of gloves. If, however, the trees are very badly affected, the only course is to uproot them and destroy them on the garden fire.

NAMES OF FRUITS. *A. T. L.* Brabant Bellefleur (syn. Glory of Flanders). *Mrs. I.* Bastard Blenheim.

ROSE LEAVES DISEASED. *W. F.* The Rose leaves show three kinds of spots: yellowish, erumpent spots on the under surface which contain the summer spores (uredospores) of the Rose rust (Phragmidium subcorticium) blackish erumpent spots also on the lower surface, which are the winter spores (teleutospores) of the same fungus; whereas one or two leaflets show on the upper surface the flat, purplish spots with yellowish centre which are characteristic of leaf scorch (Septoria Rosae). The last-named fungus appears to be only secondary, and is located chiefly where the old attacks of Phragmidium have been. The fungus, as a rule, is not a very serious pest, though when it causes cracking of the branches it is very unsightly. The usual methods of prevention and cure are (1) the collecting and burning of the old diseased leaves both from the bush and from the ground; (2) spraying, just before the leaves begin to expand, with liver of sulphur (one ounce to two or three gallons of water), or with potassium permanganate solution (one ounce to five pints of water with two ounces of soap added.)

SPECIMEN CHRYSANTHEMUMS. *E. B. W.* To obtain large specimen Chrysanthemums it is desirable to select plants rooted during December, especially when dealing with large exhibition varieties. The plants should be pinched until the required number of shoots are obtained, it may be twelve or more, this largely depending on the individual variety. It is much easier to grow large specimens of single and small-flowered Japanese varieties, with twenty-four or more good blooms. The cuttings are best rooted singly in small pots, as there is little or no check when they are potted the first time. Stopping will depend to a great extent on the varieties grown, but, as a rule, the required number of flowering shoots should be obtained about the beginning of July. The growths should be staked well apart, so that each shoot obtains the maximum amount of light and air. At one time, large Chrysanthemums, carrying 200 to 300 blooms, were exhibited, the cuttings being rooted during November; old plants were sometimes grown on into large specimens. You should be able to obtain good plants carrying twelve or more blooms in ten-inch pots. Among the large exhibition varieties Mrs. R. Luxford, Majestic and W. Turner may be selected, but only experience could prove which varieties in this section are best suited to your purpose. The stopping of these plants should not be done late in the season, May probably being the latest date for pinching. In the decorative section any of the varieties that are usually disbudded and are of a good habit should suit your purpose. Felton's Favourite, H. W. Thorpe, Sunshine, December Bronze, Nellie Pockett and Niveus being good types. Among incurved varieties, Souv. de W. Clibran, H. W. Thorpe and J. N. Streeter, make good specimens; while among the singles any of the varieties with a good habit may be selected for the purpose.

SHALLOTS. *G. G.* The Shallots are suffering from an attack of the fungus Botrytis which infected the bulbs in autumn, probably after they were lifted. The complaint is very prevalent this season owing to the poor ripening conditions during last autumn. There is no cure, and diseased bulbs should be burned. Shallots in store should be given dry, airy conditions to prevent infection of sound bulbs.

Communications Received.—A. G.—A. O.—J. F.—C. E.—H. F.—M. E. M.—G. A.—J. R. A.—R. G., Berlin.—W. M. F.—T. W. F.—A. T. B.—F. J. C.—C. E.—A. H. L.—M. T.—R. H. J.—W. F. G.

THE WEATHER, DECEMBER, 1925.

REMARKS.—The cold weather of November continued during the first week of December and then, after successive temporary mild breaks, was again and again renewed. Not until a day or two after Christmas did a permanent, warm, south-westerly current establish itself. The month was very sunny, and decidedly drier than usual; northerly winds being in excess, and southerly ones in defect. The mean temperature of the air was 38°, or 1¼° below the average; while that of the ground, at one foot beneath the surface, was so low as 34°, or nearly 4° below normal. Precipitation was measureable on twenty days, or one more than the average number; but the total quantity was only 2¼ inches, or almost an inch less than the normal. Sunshine was recorded on nineteen days, and amounted altogether to 51 hours, implying a surplus of 15 hours. Frost in the screen was registered on twelve nights, and "ground frost" on seventeen nights, but there were no minimum temperatures low enough to be noteworthy. Small falls of snow or sleet occurred on seven dates, but there was no hail. Thunder also was absent. Fog, mist and haze were again rather frequent. Brief gales were experienced on four days, the worst being a whole-gale on the night of the 30th, with a maximum hour's run of 62 miles for 10 p.m., and gusts up to a rate of 88¼ miles per hour. *Joseph Baxendell. The Fernley Observatory, Southport.*

MARKETS.

COVENT GARDEN, Tuesday January 19th, 1926.

Plants in Pots, etc.; Average Wholesale Prices.

(All 48's except where otherwise stated).

	s. d. s. d
Adiantum cuneatum per doz. ...	10 0-12 0
—elegans ...	10 0-12 0
Aralia Sieboldii	9 0-10 0
Araucarias, per doz.	30 0-42 0
Asparagus plumosus	12 0-18 0
—Sprengeri ...	12 0-18 0
Aspidistra, green	36 0-60 0
Asplenium, per doz.	12 0-18 0
—32's	24 0-30 0
—nidus	12 0-15 0
Azaleas, 48's, each	4 0—6 0
Cacti, per tray —12's, 15's ...	5 0- 7 0
Chrysanthemums, pot grown, in variety, 48's, per doz.	15 0-24 0
Cinerarias, 48's, per doz. ...	18 0-21 0
Crotons, per doz.	30 0-45 0
Cyclamens, 48's in variety, per doz.	24 0-30 0
Cyrtomium ...	10 0-25 0

	s. d. s. d.
Erica hyemalis —48's, per doz.	24 0-30 0
—60's, per doz.	15 0-18 0
—gracilis, 48's per doz. ...	24 0-30 0
—nivalis, 48's, per doz. ...	24 0-36 0
above varieties in 60's, per doz.	12 0-15 0
—in Thumbs, per doz. ...	9 0-10 0
Genistas, 48's, per doz. ...	24 0-27 0
Marguerites, 48's per doz. ...	18 0-21 0
Nephrolepis in variety ...	12 0-18 0
—32's	24 0-36 0
Palms, Kentia	30 0-48 0
—60's	15 0-18 0
Pteris, in variety	10 0-15 0
—large, 60's ...	5 0- 6 0
—small	4 0- 5 0
—72's per tray of 15's	2 6- 3 0
Roman Hyacinth, on bulbs, per doz.	4 6- 5 0

Cut Flowers, etc.: Average Wholesale Prices.

	s. d. s. d.
Adiantum decorum, doz. bun.	15 0-18 0
cuneatum, per —doz. bun. ...	12 0-15 0
Arums (Richardias) per doz.	10 0-15 0
Asparagus plumosus, per bun., long trails, 6's,	2 0- 3 0
med. sprays	1 6- 2 6
short	0 9- 1 3
—Sprengeri, bun long sprays...	1 6- 2 0
med. „ ...	1 0- 1 6
short „ ...	0 4- 1 0
Azalea, white, per doz. bun.	5 0 6 0
Bouvardia, white, per doz. bun. ...	15 0-18 0
Camellias, white per box, 12's	2 6- 3 6
Carnations, per doz. blooms	3 6- 4 6
Chrysanthemums white, large blooms, per doz.	7 0- 9 0
—yellow, large blooms, per doz.	5 6- 6 0
pink, large blooms, per doz.	7 0- 9 0
—bronze, large blooms, per doz.	7 0—9 0
above colours— —medium blooms, per doz. ...	5 0--6 0
—white spray per doz. bun	30 0-36 0
—yellow, spray per doz. bun.	36 0-42 0
—pink, spray, per doz. bun.	27 0-36 0
—bronze, spray, per doz. bun.	30 0-36 0
Croton leaves per doz. ...	1 9- 2 6
Daffodils, single, per doz. bun.	12 0-15 0
Fern, French, per doz. bun.	10 0-12 0
Forget-me-not, per doz. bun.	9 0- 12 0
Freesia, white, per doz. bun.	2 6 —4 6
French Flowers— — Acacia (Mimosa) per doz. bun.	15 0-18 0
— Anemone, De Caen, per doz. bun.	12 0-15 0
— Eucalyptus per pad ...	4 0--5 0
—Marguerites, yellow, per doz. bun. ...	4 0--4 6
—Narcissus, Paper White, per doz. bun.	5 0—6 0

	s d s. d.
French Flowers— —Narcissus Soliel d'Or, per doz. bun.	8 0-10 0
—Parma Violets, per bun. ...	4 0—5 0
—Ranunculus, scarlet, per doz. bun. ...	6 0 -8 0
—carmine, per doz. bun. ...	6 0 -8 0
—orange, per doz. bun. ...	24 0-30 0
Heather, white, per doz. bun.	10 0-12 0
pink, per doz. bun.	9 0-12 0
Hyacinths, Roman, per doz. bun., 12's ...	21 0-24 0
—large white, per doz. spikes	3 0—4 0
Iris tingitana, per doz. blooms	4 0 -5 0
Lilac, white per doz. sprays...	6 0--7 0
Lilium longiflorum long, per doz.	9 0-10 0
—speciosum album, long, per doz. ...	4 0--5 0
—short, per doz.	3 6--4 6
—speciosum rubrum, long, per doz. blooms ...	5 0--6 0
—short, doz. blooms ...	3 0--3 6
Lily-of-the-Valley, per doz. bun.	18 0-24 0
Narcissus Grand Primo, per doz. bun.... ...	12 0-15 0
Orchids, per doz. —Cattleyas ...	24 0-30 0
—Cypripediums	5 0--7 0
Prunus triloba, per doz. bun.	2 6 -3 6
Roses, per doz. blooms— — Madame Butterfly	15 0-18 0
Smilax, per doz. trails	2 6--3 0
Snowdrops, per doz. bun. ...	5 0—6 0
Stock, double white, per doz. bun.	4 0 -5 0
Tulips, single— —white	18 0-24 0
— yellow ...	24 0-30 0
—scarlet ...	24 0-30 0
—pink	24 0-30 0
—terra cotta ...	24 0-30 0
—W. Copland, per doz. bun. ...	36 0-42 0
Tulips, double— —Couronne d'or, per doz. bun.	24 0-30 0
—Murillo, per doz. bun. ...	30 0-36 0
Violets	4 0--6 0

REMARKS.—Chrysanthemum blooms, mostly of Cheshunt White and Favourite varieties are still arriving in good condition. Bronze Amber and Negoya are the best of the coloured blooms. There has been a considerable falling off in bunch Chrysanthemums, white being the most plentiful. Winter Cheer and Tuxedo are the best coloured varieties, but these are gradually becoming poorer in quality. Golden Spur Daffodils have increased in quantity and their prices are on the down grade; larger consignments are arriving from the Spalding district. A few blooms of Van Zion have been on sale during the past week. Tulips are the best so far offered this season, all blooms being much finer in quality; the newest arrivals are the double varieties—Couronne d'Or and Murillo. Wm. Copland is specially fine just now. Richardias (Arums) are much shorter in supply on account of the severe weather, and their prices reached 12/- to 15/- per doz. blooms on Saturday last. Lilium longiflorum is only in moderate demand, but its price remains firm. Carnations have maintained a steady trade, and their prices show little change from those of last week. Of Roses, Madame Butterfly is the best from home growers, and Ulrich Brunner the best from France. Consignments of French flowers have arrived in a very bad condition. On Thursday, Friday and Saturday last the contents of many packages were frozen and useless on arrival; their prices have fluctuated according to quality. The consignments this morning were more satisfactory, and prices will be normal in a day or so.

Fruit: Wholesale Average Prices.

	s. d s. d.
Apples, English, per ½-sieve— —Cox's, special	12 0-15 0
—best	6 0-10 0
—others	3 0--4 0
—Allington Pippin ...	2 0--4 0
Apples, Cooking— —Bramley's Seedling ...	4 0 7 0
—Lane's Prince Albert	4 0--6 0
—Bleinheim Pippin ...	6 0-12 0
Apples, American —Jonathan ...	12 0-15 0
—Californian ...	12 0-15 0
—Oregon Newtown ...	15 0-17 0
—York Imperial barrels ...	30 0-36 0
—Spitzenberg...	12 0-16 0
Apples Nova Scotia— —Russet ...	20 0-30 0
Stark ...	12 0-18 0
—Baldwin ...	12 6-20 0
Bananas	14 0-25 0
Brazils, per cwt.	90 0-100 0
Chestnuts, Italian, per bag	18 0-26 0
—Spanish ...	14 0-15 0
Dates (Tunis), per doz. cartons	3 0--5 0

	s. d. s. d.
Grapes, per lb — —Colmar ...	2 0--4 0
—Muscat ...	5 0-12 0
—Almerian, per barrel ...	15 0-30 0
Belgian— —Muscats ...	5 0--6 0
—Black	1 6--2 6
—Gros Colmar	1 6--2 6
Grape Fruit, —Jamaica ...	20 0-25 0
—Isle of Pines	22 6-25 0
—Florida ...	27 6-30 0
Lemons, Messina, per box ...	10 0-30 0
—Malaga ...	18 0-22 0
Oranges — —Denia	12 6-25 0
—Jamaica ...	12 0-16 0
—Murcia ...	12 0-20 0
—Malaga ...	18 0-20 0
—Jaffa ...	13 0-16 0
—Sevilles ...	14 0-18 0
Pines	2 6--5 0
Pears, Californian— —Beurré D'Anjou, case	20 0-24 0
—Winter Nelis	22 0-24 0
South African fruits— —Peaches, per box	3 6—8 0
—Apricots, per box	3 0—4 0
—Plums, Santa Rosa ...	5 0—6 0
—Others ...	4 0—5 0

Vegetables: Average Wholesale Prices.

	s. d. s. d.
Artichokes, green per doz. ...	2 0--3 0
Asparagus— —English ...	3 0--4 0
—Paris Green...	5 0--6 0
—Lauris ...	6 0—7 0
—Sprue ...	1 3--1 6
Beans— —Madeira, per basket	4 0--6 0
—Guernsey & Worthing forced— —Finest... ...	5 0--6 0
—Ord.	3 0—4 0
Beets, per cwt.	6 0--8 0
Cabbage, per tally	10 0-15 0
Celery, per doz. tans	36 0-48 0
Cauliflowers— —St. Malo, per crate	6 0-12 0
Carrots, per bag	7 0--8 6
Chicory, Belgian, per lb	0 5--0 6
Cucumbers, per doz.	36 0-48 0
Endive, per doz.	2 0--4 0
Horseradish, per bundle ...	1 3--2 0
Lettuce, round, per crate ...	3 0--5 0
—French Cos, per doz. ...	5 0--6 0
Mint, forced ...	8 0-12 0

	s. d. s. d.
Mushrooms, —French ...	1 0--2 0
—cups	2 6--3 6
—Broilers ...	1 0--2 0
Onions— —Dutch	7 6--8 6
—English, per cwt.	8 0--9 0
—Valencia ...	8 0-10 0
Parsnips, per cwt.	7 0--8 0
Peas, French crate	3 0--4 0
Potatos— —King Edward, per cwt. ...	7 0--8 6
—others	4 6--6 0
New Potatos— —Algerian per lb.	0 1¾-0 2½
—Azores, per case	15 0-20 0
—Canary Island	10 0-16 0
—Guernsey ...	0 10--1 0
Rhubarb, forced per doz. bundles	1 9--2 6
Seakale, per punnet ...	2 0--2 6
Sprouts, per ½ bag	6 0-10 0
Savoys, per doz.	2 6--4 0
Tomatos, Canary Islands Best...	14 0-20 0
Turnips, per cwt.	5 0--6 0

REMARKS.—Severe weather and snow are not helpful factors so far as the fruit trade is concerned, and business has been very much on the slow side during the past week. The demand for Apples has been fairly good, but the enquiries for Newtown and Jonathan have been poor. Some large, well-packed fruits of Bramley's Seedling continue to meet a good market, and Cox's Oragne Pippin in good condition is also selling freely. Various fruits from South Africa show expansion in quality with each weekly shipment. So far, Peaches, Apricots and Plums have met with a good demand from the buyers. English Grapes are a fair trade, as also are Grapes from Belgium. Oranges are inclined to be easier in quotation, but best Lemons are meeting a better inquiry, the cold weather probably creating a demand for hot Lemon drinks. Asparagus is a slow trade, both forced English and imported, being cheaper. Forced Beans from Guernsey and Worthing are scarce and costly, but new Potatos are meeting a quiet demand, as are new Potatos from the Azores, the Canary Islands and Algeria. Seakale is plentiful and comparatively cheap. Forced Rhubarb is not enquired for, and with fairly large quantities arriving each day, its prices are lower. Cultivated Mushrooms are a fairly steady business with no undue fluctuation in prices. Tomatos from the Canary Islands, when in condition and of good quality, are selling well. Cucumbers, mainly from the Worthing district, are expensive. Large numbers of Cauliflowers from Northern France have been very frosted, but generally, they have sold well. Lettuces from France are very plentiful, and as many consignments have suffered from frost, they have been difficult to sell, even at low prices. All green vegetables have been scarce and dear, but at the time of writing, an alteration in the section is evident. Trade in old Potatos continues steady with little or no change in prices.

GLASGOW.

Business was quieter in the past week, and as the daily supplies exceeded the demand, price movements were generally in a downward direction. In the cut flower market considerable irregularity was reflected in the values obtained by different salesmen. Thus, while one firm obtained from 2/6 to 3/6 for 6's of special pink and white Chrysanthemums, other varieties were sold by another firm as follow:—Heston White, 6d. to 9d.; Favourite, special, 1/6 to 1/9; medium, 8d. to 10d.; Winter Cheer and Baldock's Crimson, 1/- to 1/3; Golden Sunset, 1/- to 1/6; and Wilcox, 1/3. Daffodils are arriving more freely, and Golden Spurs made from 9d. to 1/6. Tulips maintained former averages, Thomas Moore being worth 1/- to 1/3; Couronne d'Or, 2/-; Prince of Austria, 1/6 to 1/9; Murillo, 10d. to 1/6; W. Copland, 1/- to 1/6; Yellow, 9d. to 1/-; and White, 10d. to 1/- for 6's. Prices of Carnations were steady at 4/- to 6/-. Mimosa realised 4/- to 7/- per pad. Narcissi, large, 4/- to 4/6 per dozen; medium, 2/- to 3/-. Lily-of-the-Valley, 2/- to 2/6; white Hyacinths, 8d. to 1/- for 3's; blue and pink, 10d. to 1/2; Lilium longiflorum (Harrissii), 5/- to 9/-; short, 3/-; and Richardias, 8/- to 10/-. Parma Violets were offered from 2/- to 3/- per bunch, and small French Violets from 1/6 to 3/- per dozen. Iris averaged 2/- per bunch.

Oranges were a cheap feature in the fruit market. Valencia 360's and 504's were purchased at 7/- to 9/- per case; 300's, 7/- to 11/-; 420's, 12/- to 18/-; 714's, 14/- to 18/-; Murcia, 360's, 9/- to 10/6; 300's, 10/- to 14/-; Mandarins declined to 9d. per box. Murcia Lemons, 300's, ranged from 14/6 to 18/-; Messina, 10/- to 12/-; and Grape Fruit, 21/- to 24/-. First consignments of Cape Fruit arrived in excellent condition. Peaches realised 6/- to 7/-; Clapp's Favourite Pears, 7/-; while Plums averaged about 3d. each. Almeria Grapes are a good market at 18/- to 26/-. English Gros Colmar sold at 2/- to 3/6 per lb; Scotch at 2/- to 3/-; and Belgrade at 1/9 to 2/-. American Apples experienced a slow sale, and prices are in favour of buyers. Winesap ruled from 9/- to 13/6 per case; Delicious, 11/- to 15/-; Oregon Newtown, 12/- to 18/-; Spitzbergen, 10/- to 13/-; Jonathan, 9/- to 13/-; Winter Banana, 10/6; Rome Beauty, 9/- to 12/-; Virginian Winesap, 25/- to 31/- per barrel; Ben Davis, 15/- to 20/-; Gano, 16/- to 19/-; York Imperial, 23/- to 29/-; Canadian Kings, 27/- to 31/-; Baldwin, 18/- to 20/-; Spy, 23/- to 27/-; and Greening, 27/- to 31/-. Prices for Pears were steady, Oregon, Doyenné du Comice sold at 15/- to 20/-; Californian Winter Nelis at 15/6 to 17/6; Oregon at 16/- to 20/-; and Washington, at 8/- to 12/-. Honey realised 1/6 per section.

In the vegetable section, Artichokes averaged 4/- per dozen; Endive and Radish, 2/-; Cauliflower, 8/- to 9/-; Lettuces, 2/6 per crate; French Beans, 1/9 to 2/6; Carrots, 6/- per bag; and Mushrooms, 1/6 per lb.

CATALOGUES RECEIVED.

Seeds.

THE PREMIER SEED CO., LTD., 117, London Road, Brighton.
S. FINNEY AND CO., LTD., 18, Grainger Street, Newcastle-on-Tyne.
LEIGHTON'S, 36, Renfield Street, Glasgow.
SAMSON'S, LTD., 8, Portland Street, Kilmarnock.
DANIELS BROS., LTD., Norwich.
E. P. DIXON AND SONS, LTD., Hull.
R. H. BATH, LTD., Floral Farms, Wisbech.
HURST AND SON, 152, Houndsditch, E.1. (Wholesale.)
D. G. PURDIE, 6, Waterloo Street, Glasgow.
CHARLES SHARPE AND CO., LTD., Sleaford. (Wholesale).
WM. CUTBUSH AND SON, LTD., Barnet, Herts.
JOHN WOODWARD CURTIS, 24, South Park Street, Chatteris Cambs.
GEORGE ELSOM, Spalding.
HARRISON AND SONS, St. James' Street, Leicester.

ALFRED DAWKINS, 408, King's Road, Chelsea.—Bulbous plants, etc.
D. AND W. CROLL, LTD., Dundee.—Seed Potatos.
D. G. PURDIE, 6, Waterloo Street, Glasgow.—Seed Potatos.
FRED STREET, Heathermead Nurseries, West Cobham, Surrey.—Rhododendrons, Azaleas, Kalmias, etc.

Foreign.

CARL BECK AND CO., Quedlinburg-Harz., Germany.—Seeds.
VILMORIN-ANDRIEUX ET CIE, 4, Quai de la Megisserie, Paris.—Seeds.
W. ATLEE BURPEE CO., Philadelphia, U.S.A.—Seeds.

GARDENING APPOINTMENTS.

Mr. Chas. Wakefield for eight years and three months Gardener to the late T. H. FIRTH, Esq., as Gardener to MISS BARRELL, Birchlands, Fulwood Road, Sheffield. Thanks for 2/- for R.G.O.F. Box.—EDS.

Mr. W. E. Evans for the past seven years Gardener at Sunninghill Park, Ascot, Berkshire, as Gardener to B. B. GUINNESS, ESQ., at Notre Dame de Vie, Mougins, Cannes, France.

Mr. J. Bumstead, for six-and-half years Foreman at Ford Manor Gardens, Lingfield, Surrey, as Gardener to CAPTAIN COBBOLD, Glemham Hall, Wickham Market, Suffolk. (Thanks for 2/6 for R.G.O.F. Box.—EDS.).

THE

Gardeners' Chronicle

No. 2040.—*SATURDAY, JANUARY 30, 1926.*

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AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 39.5

ACTUAL TEMPERATURE—

The Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, January 27, 10 a.m. Bar. 28.5. Temp. 52°. Weather, Showery.

On Seedsmen's and Nurserymen's Catalogues.

WITH the present spell of unfavourable weather open air gardening ceases to have that unlimited scope which makes it at more congenial times both an inspiration to, and the despair of, the enthusiastic gardener. Where so much is to do the inexperienced might be excused for thinking that it matters little in what order the pieces of work are done. They are apt to stand not upon the order of their doing, but time shows them the unwisdom of precipitancy and presently they learn that the closest secret of good gardening is that of all administrative work, the doing of things in judiciously appraised order. But just now, beyond clearing the snow and renovating paths, getting potting shed and tool house in trim and tools sharp, the routine work of the outdoor garden must, perforce, be suspended. Even with respect to planning new developments, the moment is not propitious; that is work which should have been done long since. Yet one thing there is which will repay the gardener and fill profitably any enforced leisure which may be upon his hands, and that is a more than usually careful study of the catalogues which the nurserymen and seedsmen are now lavishing upon him. It will well repay him to study them with attention. They show old favourites in attractive guise and, what is better, present new subjects whose pictures are so lovely as to tempt him from his established allegiances. In gardening it is always well to be a little reckless; to cultivate in moderation the Athenian virtue of ever seeking after some new thing. How far the temptation of novelty may be allowed to overpower our garden conservatism must, of course, be left to individual judgment. But surely in some respects we might show a little more accessibility to change. How many small gardens, for example, are adequately supplied with those vegetables, and particularly stem vegetables which, when grown, do so much to relieve the monotony of winter dietaries! So also is it with herbs. The disuse of simples has thrown many of them out of favour, but a garden which has not its corner or corners stocked with herbs must surely lack savour. Of more particular interest than seeking to make good such deficiencies as these is the search through the catalogues for new plants. There are the lists of new varieties to be scanned, lest perchance they may contain some novelty which promises better than the old, and no less intriguing is to discover that well stocked though the garden may be there is still room for well-proved and lovely garden plants which, as it happens, have somehow year after year been omitted from it. With respect to no plants does this omission occur more often than with bulbs. Those, for example, which have odd planting times are apt to be overlooked year after year, so that each year the gardener who neglects his time-table of planting deplores the lack of breadths of Cyclamen, of autumn Crocus and even of some among the very easily grown Lilies. It is true that he is reminded in these pages when the time comes to plant these things; but at that time he is full of garden work and engagements and so the moment slips by. Now is the time when this sort of planning may be remedied. The catalogues are portrait galleries of all these neglected beauties and those which are not portrayed are vividly described. The portraits, it may be, sometimes flatter and the descriptions may suffer from enthusiasm, but in the good catalogues—and they are many—this is but a sign of grace and not a snare; for truly it may be said of flowers what a wise and kind old man once said reprovingly to a rude youth who spoke disparagingly of women "they are all nice, bless 'em." The catalogues which stand in several ranks before us are for all kinds of garden lovers. There is the curt list for the very knowledgable—those who know what they want. There is the descriptive catalogue which adds honied words to the plant; words which both help and beguile; and there are the copiously illustrated catalogues which, by the beauty of their illustrations, allure to brighter worlds and lead the way. Not the least in interest of them all are those glum old catalogues of other days in which is modestly announced the arrival of this or that new plant. These have made garden-history and by the same token there is little doubt but those now being issued for the current year will include announcements which in time will have importance in garden history. Therefore it is well, even when they have supplied present needs and ministered to immediate requirements, that these monuments of nurserymen's and seedsmen's enterprise should not be too soon thrown away, but kept at all events until the accumulated harvests make too imperious demands upon store room. In the meantime, whilst the garden is waterlogged and uninviting, we can see reflected in the catalogues some of the beauty which at almost every other moment of the year is resplendent in the garden itself.

Gardeners' Royal Benevolent Institution.—In the unavoidable absence of Mr. Leonard Sutton, Mr. A. J. Wood presided at the annual meeting of the Charity, held at Simpson's, 101, Strand, on Tuesday, the 26th inst., at 3 p.m. There was a good attendance of supporters, and we hope to report the proceedings in our next issue. No fewer than fifty-one candidates came forward for the benefits the Institution offers to aged or infirm gardeners, or their widows, and of this number only twenty could be elected, according to the voting list circulated to subscribers; as, however, two annuitants had died since the list was printed, it was agreed to elect twenty-two candidates. Those who were successful, with the votes recorded in their favour, were as follows:—Mr. Frederick C. Bailey, Weybridge, 5323; Mr. James Cornford, Westgate-on-Sea, 4716; Mr. Henry W. Pitcher, Buckingham, 4305; Mr. Charles Canning, Betley, near Crewe, 4150; Mr. George D. White, Andover, 4098; Mrs. Eliza J. Dunn, Windsor, 3866; Mr. Frederick Styles, Worcester, 3512; Mr. Charles Seden, Peterborough, 3494; Mrs. Elizabeth Murray, Newcastle, 3350; Mr. John Thoms, Park Walk, S.W., 3273; Mr. David Betts, Exeter, 3183; Mr. John Moore, Upper Clatford, 3129; Mr. Albert Polley, Itchen Abbas, 3128; Mr. Edmund Potter, Wokingham, 2982; Mr. John Ayres, Bristol, 2977; Mr. Samuel S. Shaw, Royston, 2937; Mrs. Mary J. Towill, Bristol, 2906; Mrs. Mary Rogers, Camberley, 2864; Mr. Wm. Maskell, Hemel Hempstead, 2679; Mrs. Sarah E. Preece, High Barnet, 2677; Mrs. Eliza Carter, Ewell, 2661; and Mrs. Rhoda J. Sparkes, Horsham, 2638.

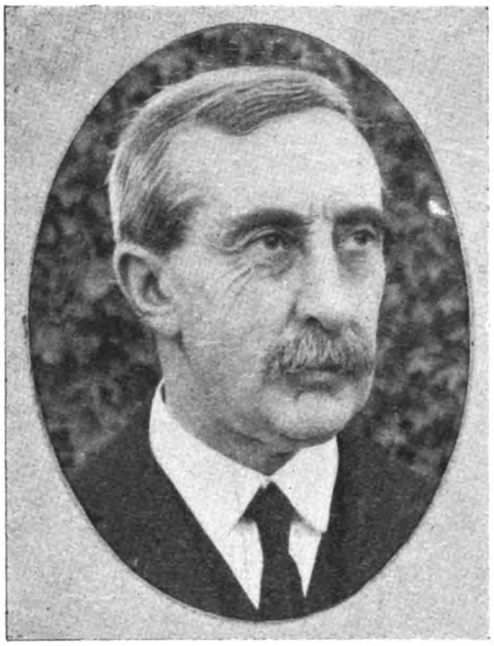
Prizes for Public Sports Grounds.—The Playground Recreation Society of America is offering special prizes to public sports grounds for progress in attractiveness made from the beginning of January until November next. The competition will be divided into three population groups, in each of which one $500 and ten $50 prizes will be awarded by the Harmen Foundation. Each of the thirty-three winning cities will also receive $50 worth of nursery stock. According to *The American Florist*, from which we glean this information, on January 6 a total of 182 cities in the United States and Canada had entered 312 playing fields in the contest.

Forcing Lettuces in the U.S.A.—The Lettuce ranks as one of the most important vegetable crops in the U.S.A. and as a vegetable forcing crop stands foremost: commercial greenhouse establishments in the United States give more space to Lettuces all the year round than to any other crop. It is estimated that the value of the Lettuce crop in 1919 was more than $8,000,000. Like our own commercial growers, American market growers use large quantities of stable manure for Lettuces, and as this material, especially in glasshouses, tends to cause sourness in the soil, the practice of applying lime to counteract the acidity is very common in that country. With a view to investigating the effect of acid soils on the crop Mr. J. W. Crist of the Agricultural Experiment Station, Michigan, conducted several experiments and comes to the conclusion that, at least under some conditions, the Lettuce is an acid tolerant plant; he observes that ordinary and often unusually high soil acidity is not detrimental to its growth. He found that the crops succeed best in a medium that is distinctly acid in reaction when the necessary plant foods are present in proper quantities and proportions. That practices differ in the United States as well as here is shown by the fact that some growers there never use lime for Lettuces whilst others apply it each year in amounts varying from 500—4,000 lbs. to the acre. The variety principally grown in U.S.A. is Grand Rapids, said to have been originated by Mr. Eugene Davis, Grand Rapids, Michigan. In the trial of Lettuces under glass conducted by the Royal Horticultural Society at Wisley, in 1924-25 this variety apparently was not included, and if it was it did not receive an award. Commenting on the trial conducted in 1923-24, the late Mr. S. B. Dicks stated (*Gard. Chron.*, Vol. LXXIV., p. 148), that the old Stansted Park variety was an easy first; in size, appearance and quality it could not be excelled. This is a Cabbage variety; the best of the Cos sorts was Hardy Green Hammersmith. Mr. Paul Aquatias, whose knowledge of the intensive cultivation of vegetables under glass entitles his opinion to the highest respect states that the best variety of Cabbage Lettuce to supply salading from January until the end of April, is the black-seeded Little Gott. Gotte a Graine Noire from Messrs. Vilmorin-Andrieux and Co., received a First Class Certificate in the Wisley trial, 1924-25.

Shrewsbury Castle presented to the Town by the local Horticultural Society.—The historical castle of Shrewsbury has been purchased for the town out of the profits of the Shrewsbury Floral Fête and will be used as a council chamber. A portion of the castle dates from Norman times, but the main part of the building was erected during the time of Edward I. Until it was purchased for the town it was in the ownership of Lord Barnard, who presided at the opening ceremony. The Mayor of Shrewsbury stated that the fortress was built to keep out the Welsh, but in the future it would bring them to Shrewsbury, for it would be used as a meeting place for Welsh organisations.

Proposed International Conference on Flower and Fruit Sterility.—There have been held already under the auspices of The Horticultural Society of New York two important conferences on matters of vital interest to horticulture. One conference in 1902 was on "Plant Breeding and Hybridisation" and one in 1907 was on "Plant Hardiness and Acclimatisation." For some time past the officers of the Society have had in mind the holding of another International Conference on some subject of timely significance to the progress of horticulture. After careful consideration the Council has decided that the subject of this conference be on "Flower and Fruit Sterility." A conference committee consisting of Dr. N. L. Britton, chairman; Mr. Frederick R. Newbold, treasurer; and Mr. A. B. Stout, secretary, was appointed; the organisation of advisory committees was authorised, and a sum of money appropriated for the expenses of the conference and for the publication of its proceedings. The conference will consider the phenomena of sterility and fertility in fruit and seed production with special reference to (a) the breeding of floricultural plants, (b) problems of fruit growing and seed production in horticultural and agricultural crops, and (c) the botanical and genetical aspects of sterility and fertility. A three-day conference is proposed, with one day devoted to the interest of floriculture, one to the problems of fruit growing, and one to the more purely scientific aspects of the subject. There will be invitation papers of the symposium type, with shorter and more special contributions as offered. It is planned to have invitation papers presented especially by several noted horticulturists botanists, and geneticists from Europe. An international Conference on Plant Sciences is to be held at Ithaca, N.Y., in 1926, which will be attended by horticulturists, geneticists, plant physiologists and others who will also be interested in the work of the Conference on flower and fruit sterility. For this reason it has been decided to hold the latter conference in New York City during the week of August 9 to 16, 1926. This will immediately precede the Ithaca Conference, the sessions of which are from August 16 to 23. The co-operation of all who are interested in this conference is requested. The Committee is now ready to receive titles of papers and an early report from those who propose to attend and particularly from those who wish to present papers is requested. Further particulars may be obtained from Mr. A. B. Stout, Secretary, Conference Committee, 598, Madison Avenue. N.Y. City, U.S.A.

Mr. Donald McKelvie.—It affords us great pleasure to publish the portrait of the best-known modern raiser of Potatos, Mr. Donald McKelvie, of Lamlash, whose productions have been referred to on many occasions in our columns. Although he did not commence Potato-raising until 1907, Mr. McKelvie has been eminently successful. The receipt of several packets of seeds from Mr. F. W. Keay of Wolverhampton excited his interest, and from these seeds he raised Arran Chief and Ally. The pollen parent was Flourball, and this variety Mr. McKelvie has used with great effect in subsequent crossings. Arran Comrade, Arran Rose, and Arran Victory followed in later years, the last being introduced to commerce in 1918. Perhaps Mr. McKelvie's greatest achievement was the raising of Arran Consul (Flourball × President), which was awarded the Lord Derby Gold Medal at the Ormskirk Trials in 1925 (see Fig. 46, p. 87). Indications of the great value attaching to Mr. McKelvie's additions to one of our principal food crops may be gathered from the fact that he was awarded the Snell Medal by the Council of the National Institute of Agricultural Botany in 1924, and in November last he was entertained to a complimentary dinner at Brodick by the Arran Farmers' Society, when he was presented with his portrait in oils painted by Mr. Grieffenhagen.


MR. DONALD MCKELVIE.

Denham Demonstration Garden.—The Denham Demonstration Station was established by the Middlesex Education Committee in 1924 as an experimental station and trial ground. The station consists of about ten acres of land at Rusholt Farm, Buckinghamshire, the estate recently acquired by the Middlesex County Council for the purpose of small holdings. It is situated in the centre of the estate, about one-and-a-half miles from the town of Uxbridge. The soil consists of a medium loam overlying gravel. The ground is laid out in plots of approximately half-an-acre, and during 1925, amongst others, trials were conducted of Strawberries; Apples and Plums intercropped with various vegetables; and Pears intercropped with Peas. In manurial trials of Currants, the following mixtures produced the best results:—(1) superphosphate of lime, 4 lb.; sulphate of potash, 1½ lb.; sulphate of ammonia, 1½ lb.; and kainit, 1 lb.; (2) sulphate of ammonia, 1½ lb.; superphosphate, 2½ lb. sulphate of potash, 2 lb.; and S.B.F. (presumably steamed bone flour) 2 lb. The above mixtures were applied at the rate of half-a-pound per bush immediately after growth had commenced. A permanent plot planted with Gooseberries and Raspberries was intercropped during the past year with varieties of Broccoli. Of the latter, Michaelmas White and Autumn Protecting were of outstanding merit. The trials in 1925 also included Savoys and Brussels Sprouts and main crop Potatos. Growers in Middlesex who are interested in the report may obtain copies from Mr. B. S. Gott, Secretary to the Middlesex Education Committee, 40, Eccleston Square, S.W.1.

All Night Pay for Gardeners.—We learn that an interesting and humorous discovery has been made in Paris in connection with the gardeners at the Palais Bourbon and the Palace of Versailles. It appears that an arrangement was made long since to grant a special rate of pay to members of the staff attached to the Chamber of Deputies, if and when the Chamber sat during the night. As there are four gardeners attached to the staff at the Palais Bourbon and one at Versailles, these fortunate horticulturists have received extra pay on occasions when the Chamber has sat from 9 p.m. onwards, although they have not had to remain on duty. The humour is emphasised by the statement that a sitting from 9 p.m. to 1 a.m. constitutes one night—in respect of extra pay—and if it continues beyond 1 a.m., then another night's pay becomes due!

Brighton, Hove and Sussex Horticultural Society.—This progressive Society has a membership of over one thousand, no fewer than 418 new members having been added to the register during the past twelve months. During the past few years the Society has held a summer show and a Chrysanthemum show, and it has now decided to hold a spring show, which will take place this year on April 14 and 15. During the winter a series of successful meetings have been held and several gardens were visited during last summer. The total receipts for the year amounted to £1,475 7s. 7d., and the Society has a balance, including cash on deposit of about £773 11s. 2d. It is satisfactory to know that the receipts of the summer show more than equalled the expenditure, for the first time in the history of the Society.

Endemic Australian Flora.—At a recent meeting of the Royal Society of Edinburgh, presided over by Professor J. H. Ashworth, the principal communication was made by Professor A. Anstrüther Lawson, Professor of Botany in Sydney University, on "Endemism and Evolution as observed in the Australian Flora." Professor Lawson stated that the vegetation of Australia formed one of the most unique and interesting floras inhabiting the earth at the present time. This was due, in the first place, to it high percentage of endemism. Although it was a very large and rich flora, seventy per cent. of its species and about thirty per cent. of its genera were endemic. At present it was practically uncontaminated by the artificial invasion of other types of plant life. This vast flora, therefore, appeared a fruitful field for the investigation of endemism and other problems of evolution. The most obvious feature of the great continental flora was the predominance of the genus Eucalyptus. With its 300 species it stood out as the most conspicuous feature of the entire vegetation and was distributed over the whole continent, except in barren deserts. No other continental flora was so predominated by a single genus. While the Myrtaceae—which included this great genus—predominated, the Leguminosae included many more species, and its important genus ranked next to the genus Eucalyptus in predominance. The tribe Proteaceae, however, was of much greater interest, although it took third place. The most outstanding and important problem in connection with this flora was the origin of its endemism, and should it be solved, it would open the way to an understanding of the evolution of the entire flora. During the past twelve years the various endemic genera of the Proteaceae, such as Grevillea, Banksia, Hakea, Telopea, Xylomelum, Isopogon, etc., and the main endemic genera of the Myrtaceae had been investigated by the writer. On account of their wide range of form, habit, habitat and variability, and more especially because of their marked tendency to sterility, he felt justified in suspecting them to be of hybrid origin, and this line of enquiry had produced profoundly interesting results. The irregular mitoses found in many of them were eventually the same as those of the hybrid Drosera described by Rosenberg in 1904 in his classic work, and of the very many endemic types investigated, all, without exception, revealed evidence of their being hybrids. This was shown in the sterility of the pollen and the corresponding abnormality of meiosis. The conclusion drawn from this investigation was that endemism in the Australian flora had its origin in hybrid mutation in the first place from the non-endemic types. This type of hybrid mutation was directly opposed to the theory of mutation of De Vries and the Morgan School in America. Hybridisation followed by natural selection had been the main factor in the evolution of the Australian flora.

Gardeners' Royal Benevolent Institution (Worcester Auxiliary).—During the past year the Worcester and District Auxiliary of the Gardeners' Royal Benevolent Institution forwarded the sum of £105 to the parent institution. About half of this amount represents the proceeds of opening the gardens of Ynys-y-Maegwyn, Davenham and Madresfield, to the public at a small charge, and in addition to their kindness in throwing open their gardens, the names of the owners R. J. Corbett, Esq., Dyson Perrins, Esq., and the Rt. Hon. The Earl Beauchamp appear in the list of subscribers. The committee's report states that membership continues at a steady level, and although some subscribers were lost during the year, they have been replaced by new members. The hon. secretary is Mr. Percy G. White, 51, Broad Street, Worcester, and the executive committee includes most of the well-known gardeners and nurserymen in the Worcester district.

Plants of Garden Merit.—We learn from the *Journal* of the Royal Horticultural Society, vol. LI, part 1, that the award of Garden Merit was conferred on the following plants in 1925: Cotoneaster horizontalis, Ribes speciosum, Rhododendron Thomsonii, R. hippophaeoides, Primula pulverulenta, Anemone nemorosa Alleni, Primula rosea, Rosa altaica, Rosa Moyesii, R. Hugonis, Ceanothus × Gloire de Versailles and Ceanothus × Veitchianus. So far, thirty-four plants have been honoured with this award, but no mention is made of the authorities who have selected the plants. Some, such as the two Ceanothuses, Primula rosea and Rhododendron Thomsonii are old and well-known garden plants, and others such as Rosa Moyesii and Rhododendron hippophaeoides are of more recent introduction. The descriptions which accompany the plants are exceedingly interesting, and in most cases references are given to illustrations of the plants.

Eradication of Rest-harrow.—In certain districts where the Rest-harrow (Ononis) is a nuisance when it spreads among pasturage and other greensward, gardeners and farmers will be glad to learn that it may be eradicated by salting. In a communication published in the *Journal* of the Board of Agriculture, Mr. P. Murray Thomson states that in an old pasture in Cumberland this weed was eradicated by heavily salting the affected areas and repeating the dressing if any plants appeared to have been missed. All the grass in the salted area was killed, but very little Rest-harrow reappeared, and where it did, it was immediately re-salted. The bare patches were sown with suitable grass seeds in the season after salting and quickly formed a good sward.

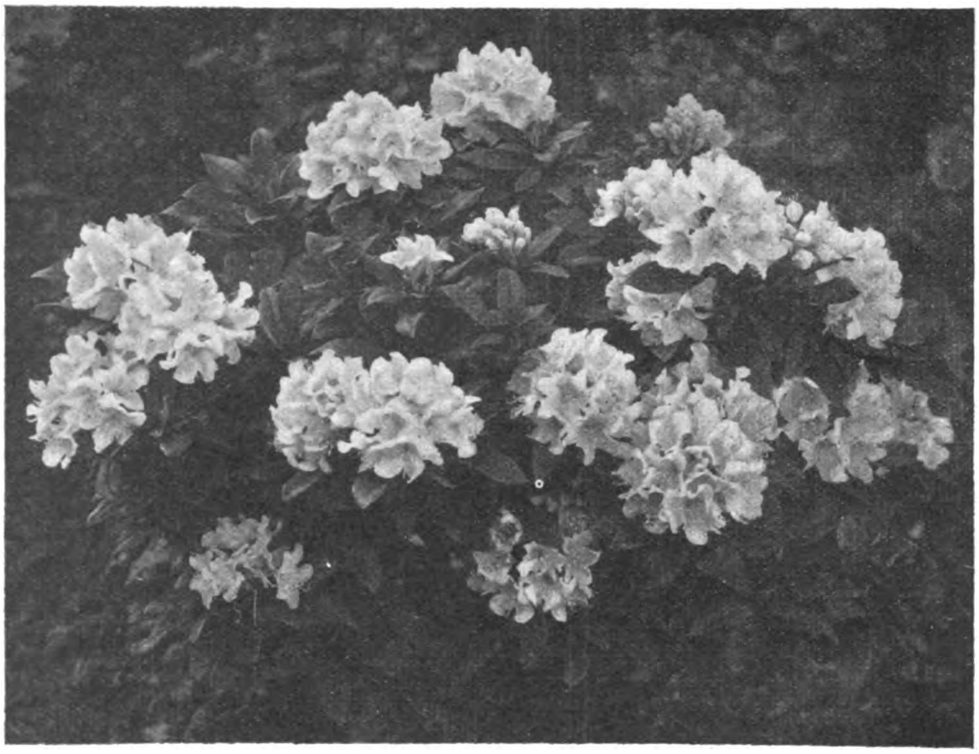


FIG. 37. RHODODENDRON SULPHUREUM.
(see p. 79).

Romsey Gardeners' Association.—The programme of this association includes a lecture on February 1, on "Apples," by Mr. Haysom; "Sweet Peas for Home and Exhibition," on March 1, by Mr. F. Castle of Chandler's Ford; and "Anemones and Tulips," on April 12, by Mr. H. Mattingly. Four outings have been arranged: on May 3 to Harefield; on May 17 to Embley Park; on June 7 to Colbury House Gardens; and on July 5 to Messrs. Sutton and Sons, Reading.

Appointments for the Ensuing Week.—Monday, February 1: National Chrysanthemum Society's Annual Meeting at Essex Hall, Essex Street, Strand: Romsey and District Gardeners' Association's meeting. Tuesday, February 2: Royal Caledonian Horticultural Society's meeting. Wednesday, February 3: Abingdon Horticultural Society's meeting. Thursday, February 4: Manchester and North of England Orchid Society's meeting. Friday, February 5: Dundee Horticultural Society's lecture; Accrington and District Chrysanthemum Society's meeting. Saturday, February 6: Blackburn Horticultural Society's meeting.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Messrs. Henderson's, Pine-apple Place.*—Jasminum nudiflorum, in the shape of a small bush, has been blooming in the open ground here for some weeks past. It promises to be one of the most desirable of our winter-flowering shrubs. The show-house is already gay with the various spring bulbs, such as Hyacinths, Roman Narcissus, Van Thol and Tournesol Tulips, etc., intermixed, here and there, with small examples of the deliciously sweet-smelling Daphne odora rosea, Cyclamens, Chinese Primulas, and Cinerarias. These, again, are backed up by Epacrises, the Winter Heath, Linum trigynum, Camellias, Rhododendron Nobleanum, and one or two other plants. The stove contained flowering specimens of Centradenia floribunda, Pentlandia miniata, an Amaryllid or two, some Begonias, which are always gay during winter; the white variety of Poinsettia pulcherrima, and some other things; the specimen house was filled with excellent plants, neatly arranged. Eriostemon intermedium, the most handsome of the genus, was just coming into flower, in which condition it will remain for many months. Styphelia tubiflora, one of the earliest of Epacrids, was in full blossom, and we observed a spike or two of the curious hybrid Veronica Andersoni coming into beauty. Double Chinese Primulas, the red and fringed white, were in bloom here. These were in deep pans, and were specimens of considerable size. The way in which they are cultivated here is to strike the cuttings, in spring; keep them growing slowly till August when they are more liberally shifted and more, generously treated, and they blossom about Christmas. After they have done flowering they are placed near the glass, and kept rather dry and cool, so as to give them a season of rest until the beginning of August, when they are repotted, their branches spread out and pegged down, and under this kind of management they blossom much better the second year than the first, beginning about Christmas and continuing on till May. The old plants are thrown away after they have flowered, the second year, and their places are supplied by one-year-old plants. The variety of Corraea called "Brilliant" was in blossom here, as was also a small plant of the deep purple-coloured Hovea pungens, a beautiful New Holland shrub, but difficult to manage. We likewise remarked in this house some "tree" Carnations, whose perpetual habit of blooming must render them favourites. After flowering they will be shortened back, summered in the open ground, and then brought into the greenhouse to blossom again next winter. It is stated that Cryptomeria japonica, though hardy, becomes brown in winter, when to be effective it should be green. A specimen in this nursery exhibited this defect. It was growing close to the edge of a small pond. *Gard. Chron. February* 1, 1851.

The Week's Work.

THE ORCHID HOUSES.

By J. COLLIER, Gardener to Sir JEREMIAH COLMAN, Bart., Gatton Park, Reigate.

Phaio-calanthe.—This Orchid is a garden hybrid between Phaius and Calanthe. The plant does not need such a decided season of rest as Calanthe, but so soon as the flowering period is past the roots should be afforded just sufficient water to maintain the pseudo-bulbs in a plump condition. These Orchids are subject to spot disease of the foliage, which may ofttimes be obviated by placing the plants in a dry position in the Cattleya house, where they will be well supplied with fresh air, without being subject to cold draughts. After a short rest the plants will begin to grow afresh, when any necessary re-potting may be attended to. This need not be done each year if the compost is in good condition, and there is sufficient room in the pot for another season's growth.

Laelia pumila.—This useful, dwarf-growing Laelia has recently passed out of flower, and so soon as fresh root action is observed, the plants may be re-potted or re-surfaced. Shallow pans with wire handles attached for suspending the plants are suitable receptacles ; they should be well-drained and only a thin layer of compost need be used, as when the plant is well-rooted in the soil it needs a liberal supply of water all through its season of active growth. It is important that the water passes away quickly The plants grow best in an intermediate temperature.

Platiclinis.—The pretty Platiclinis uncata is sending up its flower spikes from the half-grown shoots. Having to support its flowers and make growth at the same time, a liberal supply of water at the roots will be needed all through the period of growth. The graceful spring blooming P. glumacea is now sending out new shoots from the base of the last made pseudo-bulbs. This plant should be grown in a position near to the roof-glass in the intermediate house. Any necessary re-potting is best done soon after the flowers have faded, using shallow Orchid pans that can be suspended. P. filiformis is now at rest ; this plant flowers during the summer. Members of the genus Platiclinis are very subject to attacks of red spider, therefore the leaves should be sponged frequently with a solution of soft soap and tepid water.

FRUITS UNDER GLASS.

By T. PATEMAN, Gardener to SIR CHARLES NALL-CAIN, Brocket Hall, Hertfordshire.

Pot Vines.—Vines in pots that were started into growth last month are showing signs of active growth, and at this stage extra care is needed in watering the roots and ventilating the house. Guard against cold draughts, and use tepid water to keep the roots moist. Pay careful attention to disbudding and tying the shoots, retaining only the strongest and best placed laterals. The night temperature should range from 55° to 60° until the bunches are visible, but the grower must be guided by outside conditions. Observe the lower temperature in cold weather rather than overheat the water-pipes, for this would cause a dry atmosphere which would favour the spread of red spider. A humid atmosphere is the best preventive of this pest, and atmospheric moisture may be promoted by damping the floors and walls, and on bright days syringing the vines overhead with soft tepid water, but so soon as the vines come into flower discontinue syringing, damping the available bare places only. Raise the night temperature to 60° at that stage.

Successional Vines.—To provide a succession of Grapes, a vinery that has been thoroughly cleansed, and the border put in order may now be closed. If the outside conditions are cold, use only sufficient fire-heat to maintain a night temperature of 45° to 50°, allowing the temperature to rise slightly during the day, but air should not be admitted unless the temperature rises over 65° with solar heat. If the vines are young the rods will break more evenly if they are bent over or tied in a horizontal position. On bright days the vines may be sprayed with tepid water early in the afternoons, but this must be governed by the outside conditions, and some judgment is required as to what amount of atmospheric moisture should be promoted. It is always wise during the early months of the year to syringe sufficiently early in the day to ensure the vines becoming dry again before nightfall. Examine the borders carefully to see if moisture is necessary. The borders should never be allowed to become unduly dry, but on the other hand, when the vines are not in active growth water should only be supplied in sufficient quantity to meet the requirements of the roots, or the borders may soon become waterlogged and stagnant.

Pot Figs.—Where fermenting material was used for the plunging of the pots, this should be examined, and if the heat has declined, it should be renewed. The warmth from the dung will soften the effects of fire-heat and create a more humid atmosphere. Keep the night temperature at 55°, with a rise of 10° during the day.

THE KITCHEN GARDEN.

By F. STREETER, Gardener to MAJOR ALBERT PAM, Wormley Bury, Broxbourne.

Early Potatos.—Every effort should be made to produce a supply of new Potatos as early as possible. If the tubers for forcing were selected last autumn and placed singly in shallow trays, they will be in good condition for planting. I prefer herring boxes, as recommended by Mr. Edwin Beckett, to pots for planting ; they are more easily handled and may be conveniently moved into houses of the correct temperature. I find that one hundred boxes is a good number to start with, but this will depend on the requirements of the establishment. Place a few leaves on the bottom of the box to serve as drainage material, and half-fill the box with a compost of light, turfy loam and leaf-soil. Place the tubers very lightly in the boxes, using two sets, disbudded to the strongest shoot, in each box. Water the soil with tepid water about the second day after planting,and place the boxes in a fruit house that has just been started. They may be stood under the stage, if room is scarce, until the growths appear. All sets should by this date have been selected for planting out-of-doors and placed singly in trays for sprouting. Keep them in a frost-proof light shed or room.

Rhubarb.—Where a Mushroom house is available it is an excellent place in which to force Rhubarb. Select the warmer end of the house for the first batch, placing the other batches in rotation along the floor. Scatter some litter thinly on the ground on which to place the crowns, then cover the roots with sufficient soil to give them a good start. Select the finest clumps for this purpose, that have been growing undisturbed for at least three years. When damping the floors of the house, spray over the crowns gently with tepid water, and should the water pipes enter the house at the end where the Rhubarb is placed, see that the latter is never allowed to become dry.

PLANTS UNDER GLASS.

By JOHN COUTTS, Assistant Curator, Royal Botanic Gardens, Kew.

Rhodochiton volubile.—This beautiful greenhouse climber should be more generally grown for greenhouse decoration, especially as it is easily raised from seeds, and may be treated as an annual. When planted out, it is seen at its finest in its second year. Seeds are best sown any time during January in a warm house, and when large enough, the seedlings should be placed singly in small pots, potting them on as they require more root-room, until they are in six-inch or seven-inch pots, in which they will flower. In their younger condition they should be kept tied to neat stakes until they are in their flowering pots, when they may be placed in the greenhouse, and the shoots trained up wires or string under the roof-glass. This plant thrives in any good potting compost.

Gesnera cardinalis.—Where there is a stock of this beautiful plant, the dry tubers should be started in the same way as Gloxinias, these plants succeeding under similar treatment. If it is desired to raise a stock of the Gesnera it may be easily propagated from seeds sown at this date in the same manner as advised for Gloxinias. The successful flowering of the plant in its first year from seed is, however, somewhat uncertain. This beautiful plant, when in flower, may be used for the decoration of the greenhouse.

Isoloma hirsutum.—This is a most useful plant for either the intermediate house or greenhouse, and by rooting successional batches it may be had in flower more or less all the year round. In its younger stages, this plant is very useful for furnishing the benches ; afterwards it may be transferred to eight-inch pots to make large specimens for standing in the beds. Isoloma hirsutum is easily increased by means of cuttings, or the scaly rhizomes ; President Chandon is a beautiful hybrid Isoloma which succeeds under the same intermediate-house treatment during its growing period.

Carnations.—Continue to take cuttings until the required stock of plants has been propagated, Care should be taken to select the right kind of cuttings from healthy plants. The cuttings should be about three inches to four inches long, and they should not be obtained from near the base of the plants, not from the top : the right type of cutting is usually found about the middle of the plant. Where a large stock of Carnations is required, it is usual to insert the cuttings in a special bed of sand, but in the ordinary way it is just a well to insert the cuttings in three-inch or five-inch pots ; or pans may be used. A little loam should be mixed with the sand, as cuttings taken from sand beds require very careful handling when they are first potted.

Solanum capsicastrum.—This berried plant is valued during the autumn for its bright effect, and a stock of it may be raised at this time either from seeds or cuttings. The young plants should be pinched several times to promote a bushy habit. The plants should be potted on as they require it. During the summer they should be stood out-doors in an open, sunny situation.

HARDY FRUIT GARDEN.

By W. AUTON, Gardener to VISCOUNT ELVEDEN, Pyrford Court, Woking, Surrey.

Wall Trees.—The pruning and training of fruit trees trained against walls should be proceeded with wherever possible, when the work can be done. Certain varieties of dessert Pears and Plums are well worth the protection of a wall, and produce fruits of excellent quality in such positions, when they would be less successful in open situations. Pears may be fan-trained or grown as cordons, but the latter system is not desirable for Plums as they resent the restriction entailed. If summer pruning has been done judiciously, very little winter pruning will be necessary, but it may be advisable to thin the spurs where they are too numerous. It is good policy to remove all ties every year, when not only the trees but also the surface of the wall may be thoroughly cleansed before making the shoots secure again. Where wires are not provided and the branches are fastened to the wall by means of shreds, the latter should be destroyed and new ones substituted, as they almost invariably harbour the eggs of various insect pests.

Orchard Trees.—Where orchards of standard trees are established and the whole area has been allowed to become covered with grass, it is advisable to keep the surface cultivated for a space of three feet around the stems of the trees. That many orchards exist where this routine is not practised cannot be gainsaid, and when the trees have reached maturity it is perhaps not so essential, but for trees which still have much of their growth to make it has decided advantages, as it aerates the soil, facilitates feeding and encourages the formation of fibrous roots. In orchards where planting is of comparatively recent date, all stakes and ties should be examined with the object of replacing any faulty stakes and loosening the ties, to allow for the swelling of the stems during the current season of growth. Rabbits frequently do serious harm to orchard trees by barking the stems, and the evil becomes more acute when snow covers the ground. Wire netting placed around the stems is a good protecting agent, but unless this is of substantial width the rabbits often bark the stems above the wire, especially after heavy snow storms, when the frozen snow gives them considerable advantage in reach. Where damage is being done in spite of wiring, the expedient of painting the stems with something disagreeable to the rabbits should be resorted to. This may consist of a mixture of slaked lime, cow-dung, grease and Quassia extract, reducing the whole to the consistency of thick paint. A close watch should be kept on grease bands on all trees, and when necessary, the sticky material should be renewed, or the female moths ascending the trunks will not be captured.

Bush Fruits.—If sufficient decayed manure is available, there is nothing better that can be used as a mulch in the bush-fruit plantation, and if the surface is clean, the material may be applied when weather conditions make planting impossible. If such material is not available, a liberal dressing of bone-meal may be applied and lightly forked into the surface soil.

THE FLOWER GARDEN.

By F. C. Puddle, Gardener to Lord Aberconway,
Bodnant, Taly-Cafn, North Wales.

Antirrhinums.—The Antirrhinum is one of the most useful plants for garden decoration, and it is very accommodating in that the seeds may be sown in spring and the plant treated as an annual, or sown in autumn and treated as a biennial, or propagated from cuttings as a perennial. Antirrhinums in various colours, judiciously blended, are very beautiful in borders or beds, and some very pretty effects may be obtained by associating them with other annuals, as for instance:—pale yellow Antirrhinums and Blue Gem Nemesias, also crimson Antirrhinums and orange Nemesias.

The Rock Garden.—Although the majority of alpines are still dormant, the rock garden should be attended to periodically, and any plants which have been lifted by the action of frost made firm again. Leaves which have accumulated in odd corners should be removed, as they afford harbourage for slugs. A little judicious pruning of the shrubs may be necessary and this work should be done forthwith. It is important that they should not encroach on the alpines, but care should be taken not to give them a clipped appearance, or to prune them out of their natural shape. Some of the earlier-growing alpines in frames are commencing to grow, but their watering should still be done with great care, and in damp periods it will generally be found sufficient to keep the ashes in which the pots are plunged, moist. The frames should be freely ventilated at all times, and the atmosphere kept as dry as possible.

Sweet Peas.—The main sowing of Sweet Peas may now be made. When a moderate supply of plants is required, the usual practice of sowing in pots may be followed, but where larger quantities are wanted for garden decoration, and for cutting, the method of sowing the seeds in turves has much to commend it. A cold frame, and preferably one containing an old hot-bed, so that the turves may be brought close to the glass, should be chosen, and freshly-cut turves twelve inches square and not less than three inches thick, secured. The turves should be divided into three-inch cubes, and these packed in straight lines across the frame until all the available space is filled. The frame is then ready for sowing. Germination may be accelerated by placing the seeds in water for about eighteen hours before sowing them. A convenient method of doing this is to place a number of small pots, each with a piece of paper fixed firmly in the bottom, in a shallow tank: water to the depth of one inch should then be poured in and the seeds placed in the pots and duly labelled. The seeds may be sown one or two in each cube, according to the space available, at a depth of half-an-inch. The surface should then be covered with a thin coating of fine soil, and a line of lime and soot placed around the frame as a deterrent to slugs. The frame should be kept close until the seeds germinate, but afterwards it should be ventilated freely. It will be found an advantage to decide on the scheme of planting beforehand, so that the seeds may be sown in the same order, which will facilitate their removal at planting time.

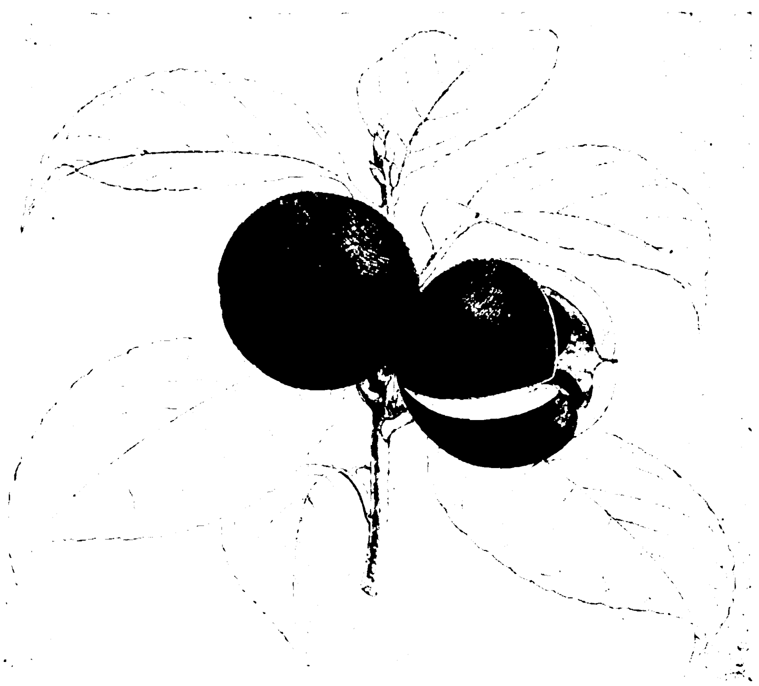


FIG. 38.—CAMELLIA FRUITS.

(see p. 79).

FOR NORTHERN GARDENERS.

By A. T. Harrison, Gardener to the Marquis of Ailsa, Culzean Castle, Maybole, Ayrshire.

Seed Sowing.—Many seeds may now be sown under glass, and if early crops are desirable, a box or two of the various Brassicas should be sown, including early and late Cauliflowers, Brussels Sprouts, Cabbages, both green and red, and Lettuces. Leeks and Celery, if required for August and September shows, should now be raised from seeds sown in heat and grown on steadily under favourable conditions until they are ready to plant out in well-prepared trenches. Prick out earlier-sown Tomatos when they are large enough to handle, and sow again for mid-season use. Where Cucumbers and Melons are required early, the seeds should be sown in a fairly high temperature. These early crops should only be attempted where ample provision exists for ensuring the requisite warm temperature being maintained during cold spells.

Vineries.—Where vines are grown entirely without fire-heat, the houses should now be closed, and if the border is at all dry it should be soaked with tepid water. On warm, sunny days, damp the house, but do not open the ventilators; even if the nights are very cold the sun's warmth that is retained will be sufficient to keep out frost. This treatment should be continued for a month or six weeks, when the buds will be bursting, and by the end of March the vines should be showing their first leaves. At this stage the top ventilators should be opened on sunny days. Continue damping and syringing to ensure a moist atmosphere, and close the ventilators as early as possible after midday to raise the temperature again. Some growers are of the opinion that Grapes cannot be produced in this country without a heavy expenditure on coal, but the results obtained here during the past six seasons have been excellent, and unless Grapes are required early, that is, before the end of August, there should be no difficulty in growing and finishing Grapes to perfection. This cool treatment is not suited to all varieties; those which have responded best to this cool treatment include Black Hamburgh, Gros Maroc, Directeur Tisserand, Alicante and Mrs. Pince.

Re-potting.—So soon as the flowering period is past is the most suitable time to divide and re-pot Cypripedium insigne and its varieties. These valuable winter-flowering Orchids produce such a wealth of useful and lasting cut flowers during winter that if an increase in their numbers is desirable they may now be turned out of their receptacles and divided to almost any extent. Select healthy portions and re-pot them in a compost of turfy loam, rough leaf-mould, or even rough leaves with the addition of chopped Sphagnum-moss. This, coupled with the provision of ample drainage, will suffice for the plants' needs, and while they do not require this treatment annually, it is as well to re-pot a portion of the stock each year, and so ensure flowers of high quality.

ORCHID NOTES AND GLEANINGS.

CYMBIDIUM NIVEUM.

A FLOWER of this pretty hybrid, raised between C. eburneum and C. erythrostylum, is sent by Frederick J. Hanbury, Esq., F.L.S., Brockhurst, East Grinstead. It is intermediate between the two parents, and shows well the elegant habit of C. erythrostylum.

The flower, which has nearly equal sepals and petals, is silver white with the lip intensely spotted with rose colour.

The flowers of C. erythrostylum crosses are not so large as those with C. insigne, but the habit of the spikes and the elegant arrangement of the foliage render the plants specially attractive.

CYPRIPEDIUMS FROM ASHTON WOLD.

THE Hon. Mrs. N. C. Rothschild, Ashton Wold, Oundle (gr. Mr. C. Wright) has forwarded a good selection of hybrid Cypripediums raised at Ashton Wold, all of which are specially well-grown, and some of them new crosses.

Among the known crosses, flowers of C. Hera-Beeckmannii, C. Aure-Euryades and C. Leeanum crosses are very fine, the inflorescences having in some cases two flowers each.

C. The Duchess, Ashton Wold variety (aureum Hyeanum × insigne Chantinii) is a model flower of perfect shape; the large, round, dorsal sepal has heavy, claret-coloured spotting on the lower half and is pure white above. C. Astron (Beeckmannii × Stevensii), a good variety, was raised at Ashton Wold some years ago and has been again used for crossing.

C. Oriana (The Duchess × Fairrieanum) is a worthy addition to its class, showing much of the rich rose-purple spotting on the white dorsal sepal as in the best form of C. insigne Chantinii. The petals are sap-green with numerous spots and lines of chocolate-purple colour; the shining lip is dark chocolate-purple.

C. Memo (Astron × The Duchess) is a very large and finely-shaped flower with pure white dorsal sepal that has a small greenish base, and on the basal half spotted lines of claret-purple, which are darkest in the middle. The broad petals are honey-yellow, closely set with dark purple lines and spotting. The large lip is faced with purplish-brown, the side lobes and staminode being yellow.

DENDROBIUM LODDIGESII.

REFERENCE to the fine specimens of Maxillaria venusta, shown by Mr. J. Cypher (see January 2, p. 6), and subsequently even larger plants by Messrs. J. Cypher and Son, suggests calling attention to the grand plants of Dendrobium Loddigesii, with hundreds of flowers, which were often some of the most admired specimens in collections, yet in recent years, this Orchid has been neglected by growers. It stands alone in the genus Dendrobium, and should be easily recognisable, yet it has been the subject of more confusion and erroneous names than most species. It was figured in Loddiges' *Botanical Cabinet* as D. pulchellum in 1833, and under that name it was known until the late Mr. R. A. Rolfe, in an interesting article in *Gard. Chron.*, August 6, 1887, p. 155, gave a complete history of the plant and conferred on it the name of D. Loddigesii.

D. Loddigesii is a Chinese species of densely tufted habit, having numerous, closely-arranged, leafy pseudo-bulbs, three or four inches in length, and bearing singly on short stems showy flowers, one-and-a-half inch across. The sepals and petals are light mauve on a white ground; the lip is broad and orbicular in outline, pale mauve with a large orange-yellow disc.

The best specimens have been grown in shallow Teak wood baskets suspended in a cool intermediate house. This Orchid was often grown in a warm greenhouse, fruit house or conservatory in old gardens, and such plants remained in good health, while specimens in a very warm house failed. It is the Dendrobium Seidelianum of Reichenbach, but D. Loddigesii has priority. *J. O'B.*

NEW HYBRID ORCHIDS.

(*Continued from December 26, p. 498*).

Name.	Parentage.	Exhibitor.
Brasso-Cattleya Cyclops	B.-C. Hercules × C. Trianae	Sanders.
Brasso-Cattleya Enodoe	B.-C. Digbyano-Mossiae var. Queen Alexandra × C. Snow Queen.	Sanders.
Brasso-Cattleya Estrella	C. Queen Bess × B.-C. Vilmoriniana	M. Theodore Pauwels.
Brasso-Cattleya Mrs. Robert Paterson	C. Clotho × B.-C. Cliftonii magnifica	Black and Flory.
Brasso-Cattleya Sindoro	C. Empress Frederick × B.-C. Vilmoriniana	M. Theodore Pauwels.
Brasso-Cattleya The Provost	B.-C. Rosita × C. Peetersii	Black and Flory.
Brasso-Cattleya Undine	B. Digbyana × C. Dusseldorfei Undine	Sanders.
Brasso-Laelio-Cattleya Gwendoline	B.-L.-C. Gatton Princess × C. Trianae ampliata	Sir J. Colman, Bt.
Brasso-Laelio-Cattleya Myrrh	B.-C. Digbyano-Mossiae × L.-C. Myrrha	Sanders.
Brasso-Laelio-Cattleya Negresco	L.-C. St. Gothard × B.-C. Mrs. J. Leemann	M. Theodore Pauwels.
Calanthe Hexham Lad	Angela × Sedenii burfordiense	C. Cookson, Esq.
Cattleya Henri Geeraert	C. Gudrun × C. Queen Mary	M. Theodore Pauwels.
Cattleya Ingelborg	Hermann Sielken × Harrisoniana	Peter Bauer.
Cattleya Memoria Cogge	C. Empress Frederick × C. Gudrun	M. Theodore Pauwels.
Cymbidium Edward Marshall	Doris × Albatross	Messrs. Sanders.
Cymbidium niveum	eburneum × erythrostylum	F. J. Hanbury, Esq.
Cypripedium Aesop	Aeson giganteum × Lord Wolmer var. Hermes	Mrs. Bruce & Miss Wrigley.
Cypripedium Alcinous	Florence Spencer × nitens-Leeanum	Hon. H. D. McLaren.
Cypripedium Brigadier	Gaston Bultel × Leeanum	B. J. Beckton, Esq.
Cypripedium Cadland Monarch	nitens-Leeanum × Pyramus	Capt. H. Drummond.
Cypripedium Chrysippus	Psyche × Rothschildianum	Hon. H. D. McLaren.
Cypripedium Consul	C. Constance Wrigley × Alcibiades	Mrs. Bruce & Miss Wrigley
Cypripedium dissimile	Troilus × The Baron	Hon. H. D. McLaren.
Cypripedium grangefieldense	Harrisianum × Royal George	A. J. Keeling and Son.
Cypripedium Helsa	Helen II × Satyr	Mrs Bruce & Miss Wrigley
Cypripedium Lady Moon	Moonbeam × Lord Wolmer var. Hermes	Mrs. Bruce & Miss Wrigley.
Cypripedium Lawgiver	Hera-Beeckmanii × Draco	Mrs. Bruce & Miss Wrigley.
Cypripedium Mesner	Lord Wolmer var. Hermes × Mirum	Mrs. Bruce & Miss Wrigley.
Cypripedium Mrs. James D. Paterson	Elatior × Argo	Robert Paterson, Esq.
Cypripedium Mrs. James Whitton	aureum × Alcineda	Robert Paterson, Esq.
Cypripedium Panope	Alma Gevaert × Actaeus	Hon. H. D. McLaren.
Cypripedium Phips	Boltonii × aureum Surprise	J. J. Joicey, Esq.
Cypripedium Rex	Ernest Read × King George V.	Mrs. Bruce & Miss Wrigley.
Cypripedium St. Kentigern	Albert Fisher × Perseus	R. Paterson, Esq.
Cypripedium Styx	Conspicuum × Beeckmanii	Hon. H. D. McLaren.
Cypripedium T. B. Armstrong	Christopher × Alcibiades	Armstrong and Brown.
Cypripedium The Princess	Alcibiades × Alcineda	Armstrong and Brown.
Cypripedium Toreador	King George V × Perseus	S. Gratrix, Esq.
Laelia autoceps	Anceps × autumnalis	Sanders.
Laelio-Cattleya Fable	C. Fabia × L. Gouldiana	Sanders.
Laelio-Cattleya Grandis	C. Empress Frederick × L.-C. eximia	M. Theodore Pauwels.
Laelio-Cattleya Natalie	L.-C. Serbia × L.-C. Ivanhoe	Cowan and Co.
Laelio-Cattleya Santa Claus	Soulange × St. Gothard	Stuart, Low and Co
Laelio-Cattleya Sheik	C. Shilleriana × L.-C. Aphrodite	Sanders.
Laelio-Cattleya striata	L.-C. Rosalind × C. maxima	Charlesworth and Co.
Laelio-Cattleya Yule	C. Comet × L.-C. Dominiana	Black and Flory.
Miltonia Lycaena	Princess Margaret × Lord Lambourne	Baron Schröder.
Odontioda Aricia	Oda. Arlotta × Odm. Felicity	Charlesworth and Co.
Odontioda Beacon	Oda. Chantecler × Odm. President Poincare	Charlesworth and Co.
Odontioda Gwentara	Oda. Alcantara × Oda. Gwendoline	Charlesworth and Co.
Odontioda Hesta	Odm. Aireworth × Oda. Hypatia	Charlesworth and Co.
Odontioda Minucia	Oda. Aphrodite × Odm. crispum Lorraine	Charlesworth and Co.
Odontioda Nairsiae	Odm. Thompsonianum × Oda. Lambeauana	Stuart Low and Co.
Odontioda Ruficauda	Oda. Windsor × Oda. Mars.	E. B. Ormerod, Esq.
Odontoglossum Brunius	eximium × Princess Yolande	Charlesworth and Co.
Odontoglossum Draco	Solon × Gorizia	Charlesworth and Co.
Odontoglossum Gorispum	Gorizia × crispum	Charlesworth and Co.
Odontoglossum Minnehaha	Harryanum × majesticum	Sanders.
Potinara aurata	L.-L.-C. Anzac × B.-L.-C. Joan	Charlesworth and Co.
Vuylstekeara Lutetia	Vuylstekeara Brewii × Odm. luridum	Charlesworth and Co.

INDOOR PLANTS.

WINTER-FLOWERING BEGONIAS IN AMERICA.

THE large-flowered race of early Winter-flowering Begonias given to us originally by the late Mr. John Heal, and supplemented in more recent years by Messrs. Clibran, of Altrincham, is very popular in America on private estates; the plants flower, in the main, with us, a little too early for the commercial growers who want quantities of brightly-coloured flowering plants for the Christmas trade. A few florists have tried them but do not appear to have been particularly successful with them; however, they are largely grown on very many private estates. With us, the bulk are at their best at the time of the Chrysanthemum exhibitions, during the first half of November, although some will flower so late as January if not grown in too much heat. At the last exhibition of the Massachusetts Horticultural Society there were numbers of good sized groups, of extremely well grown plants, and these attracted fully as much attention as the Chrysanthemums; some of the plants were fully a yard in diameter, and all were simply smothered with blooms. All the varieties popular in England are grown here.

Of the smaller-flowered, winter-blooming Begonias, tens of thousands are grown here for the Christmas trade. Very few of B. Gloire de Lorraine are now seen, and even Glory of Cincinnati has all but disappeared to make place for Melior which is of a better habit than Cincinnati, and seems to stand the drying atmosphere of our steam-heated American homes better; although many sizes of these plants are grown, the most popular are those in six-inch and eight-inch pans.

Limited numbers only of the dark-leaved and deep pink-flowered Mrs. Petersen are seen, but moderate numbers of Gloire de Chatelaine, or improved forms of it, are sold. Both these latter, as well as the large-flowered Begonias are propagated from full-sized leaf cuttings, a method that has all but superseded the old-time stem cuttings, and appear to produce better plants. Leaves are usually put in the propagating benches in clean, sharp sand, where there is a steady bottom heat, during November and December, and, properly treated, nearly 100 per cent. will root. Later batches of cuttings are used to give smaller plants, and some stem cuttings are utilised for the very small sizes, these not being rooted until summer in the case of such varieties as Melior and Mrs. Petersen. *William N. Craig, Weymouth, Mass., U.S.A.*

FRANCOA RAMOSA.

SEEDLING stocks of this old herbaceous perennial vary considerably. Propagation by cuttings of the improved type grown in pots for cool greenhouse decoration is recommended.

Non-flowering growths, removed in autumn and inserted singly in small pots, root quickly. If wintered in a cool greenhouse the plants will be ready for transference to four-inch pots early in the year, placing them in pots six inches in diameter, in which they will flower later in the season. They require a strong, rich soil.

When established in four-inch pots, they may be removed to a frost-proof frame. As the flower-spikes develop they will require more head-room, and, after being neatly staked, the sashes may be removed, and the plants fully exposed, placing them in the show house or conservatory when the flowers expand. *Fred W. Jeffery.*

TREES AND SHRUBS.

CAMELLIAS FRUITING.

Mr. E. Scaplehorn, of Beckenham, very kindly informs us that last autumn he saw fruits on a Camellia growing out-of-doors in the gardens of Sir Francis Oppenheimer at Toys Hill, Brasted, Kent, and asks if this is not an uncommon occurrence.

While Camellias fruit very freely in many Riviera gardens, particularly in Italy, and also, with less frequency, in south-west Cornwall, it is not often that fruits are formed on bushes growing in colder districts. We remember seeing tall bushes in the Falmouth district some years ago that bore large crops of fruits which, in the early autumn, had become brightly coloured on the sunny side, and from a little distance presented the appearance of small, rosy Apples. In a note printed in *The Gardeners' Chronicle* of December 1, 1900. Mr. A. C. Bartlett remarked on the peculiarity of the striped-flowered variety. Comtesse Lavinia Maggi, bearing fruits similarly striped with red colour, whilst the fruits from an unnamed semi-double, red-flowered variety were reddened entirely on the side exposed to the sun.

During its eighty-five years of publication, *The Gardeners' Chronicle* has contained a number of references to the fruiting of the Camellia. The issue of December 27, 1873, contains a full-size illustration of a pair of fruits which had formed on a Camellia growing out-of-doors at South Lychett House, Poole, Dorset, and on January 26, 1884, we illustrated a fruiting branch of Camellia Donckelaari from Spring Grove, Bewdley. More recently, the issue of December 15, 1900, contains an illustration of a fruiting branch of a Camellia on which may be well seen a fruit dehiscing into its characteristic three capsules, whilst a similar, though smaller illustration appeared in our issue for September 11, 1915 (Fig. 38).

As Mr. Scaplehorn observes, the solitary fruits contained in each capsule have much the appearance of Barcelona Nuts. In this country seeds produced out-of-doors are often infertile, but we have records of seedlings raised for stock purposes, from fruits ripened in cool and airy conservatories. It would seem that it is the single and semi-double varieties that fruit most freely.

RHODODENDRON SULPHUREUM.

This beautiful yellow variety of Rhododendron (Fig. 37) was raised by the celebrated Mr. James Cunningham, of Comely Bank Nurseries, Edinburgh, from R. caucasicum crossed with R. arboreum album. It is one of the best of the hardy yellow Rhododendrons, producing bold trusses of sulphur-yellow coloured flowers in April or May.

R. caucasicum has yellowish-white blooms and many of the garden varieties of Rhododendron having yellow on the otherwise white corolla have R. caucasicum in their parentage. Mr. Cunningham also raised the beautiful Cunningham's White from R. caucasicum, the other parent being R. ponticum album.

WINTER-FLOWERING HEATHS.

During the first week of the New Year, it was interesting to observe several different Heaths in flower making a delightful picture in the Heath garden. The wonder is that these inexpensive plants are not more extensively grown for the decoration of the garden during winter. They thrive in most soils, except those of a very calcareous nature; even E. carnea and its hybrids do not seem to mind a little lime in the soil, but rich garden soil should be avoided for all these plants, as it is conducive of sappy growths. A sandy loam with the addition of peat is an ideal rooting-medium and ensures that dense, sturdy habit which is so desirable, as it reduces the need for pruning and increases the production of flowers. It has been said that in certain places there is plenty of the ordinary Heather on our hills and commons during summer, but that is no reason why the winter- and spring-flowering species and varieties should not be more extensively grown in gardens. Many a dull corner could be made bright and interesting with Heaths, and when once established the cost of upkeep is very small.

The Heaths that are especially good at present are Erica darleyensis; this fine hybrid is said to be a cross between E. carnea and E. mediterranea, and in flower is very similar to both parents, but in habit it is between the two, eventually reaching a height of two feet. This Heath has been in flower since November; the recent frosts and snow seem to have done it no harm, and at present it is as freely-flowered as any Heather on the moor during August. Other kinds in flower at present are Erica carnea var. King George, and E. carnea var. Queen Mary, both excellent forms and very freely-flowered. E. carnea praecox rubra, as its name denotes, is a much darker form. E. carnea var. alba and E. carnea var. Pink Beauty, are white and pink forms respectively. E. carnea gracilis is also useful. Amongst the taller forms E. lusitanica is worthy of note.

The beautiful Hamamelis mollis is again in full flower, and has been in bloom in the woodland since the middle of December. These Witch Hazels are charming at this period of the year, and here there is material for a charming picture in winter—if a group of Hamamelis mollis with its bright yellow, spidery flowers is planted on a ground work of Erica darleyensis. These and other forerunners of spring convey a message of hope to the enthusiastic gardener at this season of the year. *Rhius.*

IRIS GARDEN.

IRIS MINUTA.

This dainty little Japanese species (Fig. 39) is unknown in a wild state, and somewhat rare in cultivation Of lowly stature, the non-flowering growths carry slender leaves which may be so much as eighteen inches long, but the flowers rarely exceed six inches in height. The latter are yellow with dull purple spots, and very pretty. Although considered to be "fairly hardy," Iris minuta is a desirable pot plant for cultivation in a cold frame or a cool house, in which it will flower in May. The roots are tuberous, and according to the *Bot. Mag.* (t. 8,293), "these are found to bear many very small Potato-like tubers, in shape and size somewhat resembling the eggs of ants; these tubers may serve the purpose of the large, fleshy tubers met with on the roots of certain species of Asparagus."

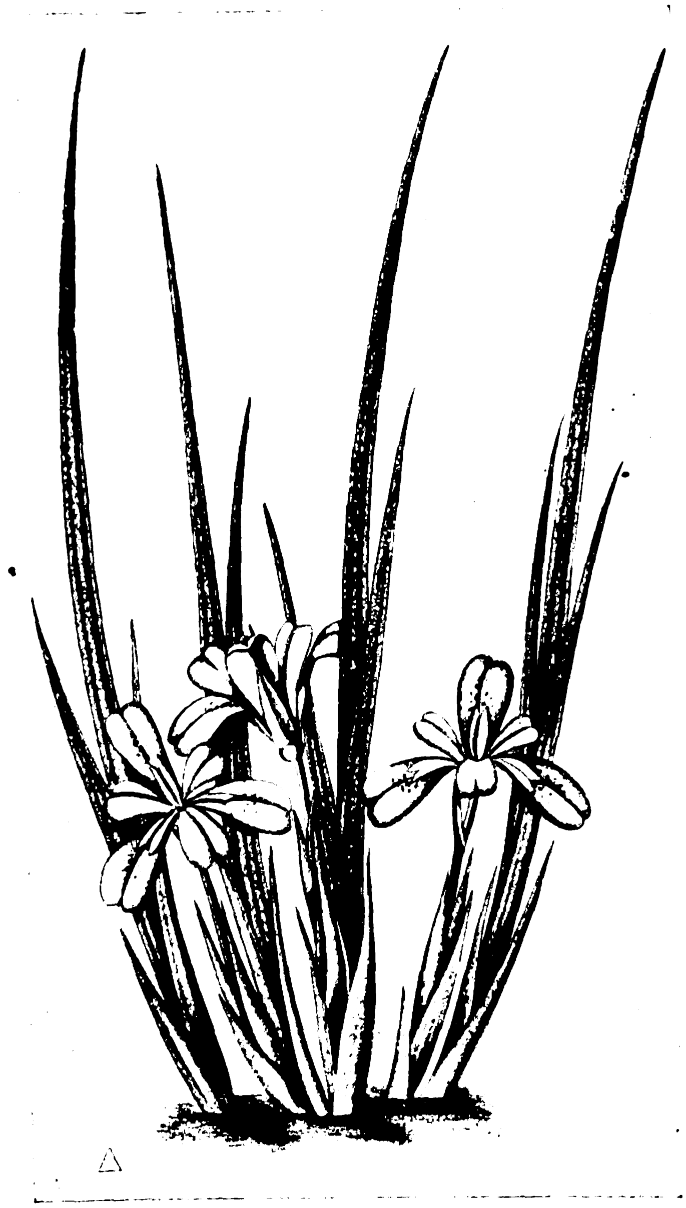


FIG. 39. IRIS MINUTA.

MESEMBRYANTHEMUM.

(Continued from p. 49).

3.—LITHOPS, N. E. Br.

This genus comprises stemless perennials consisting of one, two or several growths in a clump, in nature mostly buried in the ground, so that their tops are nearly, or quite, level with the surface. Each plant or growth consisting of an obconic or slightly compressed subcylindric fleshy body, which, when adult, has a transverse fissure all across the top, dividing it into two short contiguous (or under cultivation sometimes gaping) lobes, truncate and flat or slightly convex at the top; in the juvenile stages it often has only a small central orifice exactly as in Conophytum. Flower usually solitary, rarely 2-3 from the same growth, just exserted from the centre of the fissure. Calyx not membranous, partly or entirely exserted from the fissure, compressed, not produced into a tube above its union with the ovary, 4-7 (usually 5-6)-lobed. Petals many, free to the base. Stamens numerous, collected into an erect column or cone. Style short or almost absent; stigmas 4-7, filiform. Ovary inferior, 4-7-celled; placentas on the outer wall or floor of the cells. Capsule small, with 4-7 valves and cells; each valve with one stout central expanding-keel, or the expanding-keels contiguous for most of their length with the tips diverging, and with a broad membranous wing on each margin; cells open, without cell-wings or a tubercle. Seeds minute, sub-globose or slightly compressed-ovoid, with a short nipple at one end.—N. E. Br. in *The Gardeners' Chronicle*, 1922, v. LXXI, p. 44.

Species 19 at present known, natives of Damaraland, Great and Little Namaqualand, Prieska, Griqualand West, Transvaal, and the Karoo region from Laingsburg Division to Willowmore Division. The type of the genus is L. Lesliei, N. E. Br.

The name is derived from the Greek, *lithos*, a stone, and *ops*, face or appearance, in allusion to the resemblance of these plants to the stones among which they grow.

Fig. 40 is a diagram showing the floral structure of this genus.

The references to and descriptions of species that follow are additional to those already given in *The Gardeners' Chronicle*, 1922, vol. LXXI, pp. 55, 65 and 80, and bring the account of this genus up-to-date.

The members of this genus are great favourites with those who cultivate succulent plants, not only on account of their neat appearance, showy flowers and interesting character, but also on account of the remarkable way in which they imitate the stones and soil among which they grow. It appears to me, however, that it is not certain that we have arrived at a correct solution when we state that this mimicry of their surroundings is a real protection to the plant. It may be that it is; at the same time, it has recently occurred to me that as the eyesight of animals and birds is so much keener than that of mankind, and as the botanical collector is able to find these plants when he searches for them, why may not the hungry animal or bird with their much keener eyesight be able to do so too? They would surely sometimes find one or two, and the experience thus gained would teach them how to look for others. At least, that is how it appears to me. And, indeed, Berger, in his work on *Mesembryanthemum*, p. 11, records that Dinter has mentioned that baboons search for and eat Lithops pseudo-truncatella, so that they, at any rate, have learned how to detect it, in spite of the fact that it is a species that so closely resembles the stones it grows among as to be easily overlooked! Yet one cannot overlook the fact that the ordinary non-botanical person very commonly does fail to detect these plants, as I have recorded in *The Gardeners' Chronicle*, vol. LXX, p. 250, and vol. LXXI, p. 44.

Even when in flower, some of these mimetic species, I am informed by more than one South African observer, are practically indistinguishable from their surroundings at a short distance, and when out of flower and at rest, they are so inconspicuous that one correspondent, writing of mimetic species belonging to other genera than Lithops, writes of them, when in a resting condition: "I cannot find them, I can't think where they all get to." So that if animals and birds, in spite of their having keener eyesight and instincts than man, are, after all, only comparable with the ordinary non-botanical observer and not with the botanical collector, then there can be no doubt that mimicry would protect the plants. But can we assume that in the ages passed animals and birds, driven by hunger, have not learned how to use their keen eyes and distinguish these mimetic plants from their surroundings, even as the keen-eyed botanist has done? At present, it seems to me, that this subject of mimicry has not been so clearly solved as some appear to believe.

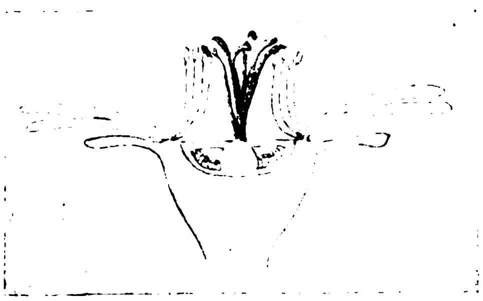


FIG. 40.—LITHOPS TURBINIFORMIS.
(Diagramatic section of flower).

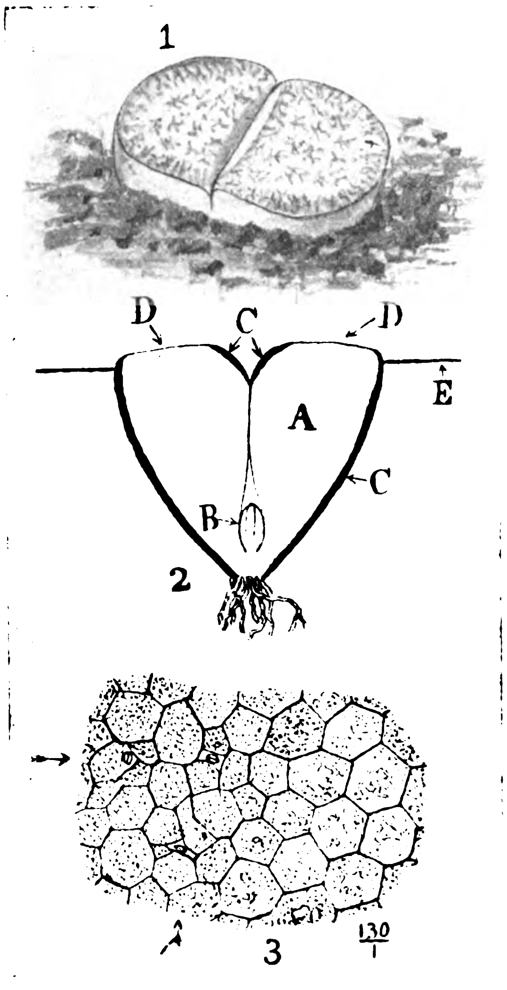


FIG. 41.—LITHOPS (MESEMBRYANTHEMUM) LESLIEI.

And there is another problem connected with this genus Lithops (and other genera that belong to the little group called "Windowed Plants"), which in nature are said to grow buried in the ground with only the top or windowed part of the leaves above the soil, of which the accepted solution is not quite a sufficient and satisfactory explanation, I think. I have given particulars and an illustration of the structure and mode of growth of this genus in *The Gardeners' Chronicle*, 1921, vol. LXX, p. 250, f. 112, and additional details of the same subject will be found given by Miss M. Karsten in the Dutch publication, *Succulenta*, 1925, vol. VII, p. 125. The above-quoted figure (Fig. 41) is reproduced here, and shows how the chlorophyll-layer (Fig. 41 C) is confined to the sides and gaping part of the fissure of the plant, most of it being underground, the top (Fig. 41 D) being the window which is destitute of chlorophyll.

The accepted explanation of the purpose of this arrangement (as already detailed at the place quoted), is to prevent the chlorophyll from being injured by the intensity of the light in its native region. But continued observations of the behaviour of this and other genera of "Windowed Plants" having the same general structure, has caused me to alter my opinion. For, as grown by myself, these plants do not like being buried in the soil; if planted so, the first new growth that they make always rises considerably above it, and a plant of a species allied to M. rhopalophyllum (which will later be found described under the genus Fenestraria) that I planted buried in sand, as illustrated in Dr. R. Marloth's splendid book *The Flora of South Africa*, vol. I, p. 207, t. 52, would not grow so, but soon made an elongated internode and raised its new crop of leaves entirely above the soil. One plant, however, that was watered from above, instead of from below, quickly rotted, and I have had two plants of L. Lesliei also rot that were planted with their tops level with the ground. This has caused me to believe that it is not the intensity of the light that injures the chlorophyll and causes the plant to bury itself, but the necessity of preventing the loss of water stored up in the leaves during the long periods of drought and great heat these plants have to endure. For, in the first place, we have the fact that there are many species of Mesembryanthemum, the species of Glottiphyllum, some of Gibbaeum and Conophytum, etc., that have green leaves or growths that are not at all glaucous and are fully exposed to the intense light and unharmed by it, while in Lithops itself the layer along the fissure is fully exposed, and in the tropics, the leaves of trees, etc., are also fully exposed to the light uninjured. In the second place, although being buried in the ground in their dry native country would protect them from too much transpiration, and to a certain extent the surrounding soil might even absorb and retain some of the moisture evaporated by the plant, which may possibly be re-absorbed by it again during the cool of the night, yet in the humid atmosphere of this country, except during the hottest summer weather, these plants evidently find it difficult to transpire sufficiently when buried in the soil, and hasten to get out of such stifling quarters. And in several instances I have found that in other stemless genera whose leaves are in contact with the soil, if watered (but not over-watered) from above when the atmosphere is rather humid, those leaves will occasionally rot where in contact with the damp earth. From these factors I have, therefore, come to the conclusion that it is for the conservation of water, and not to escape from the light, that these plants bury themselves in the ground and use the top of their leaves as a window.

Lithops Eberlanzii, N. E. Br.—Growths ⅔-1½ inch high, 7-16 lines broad, obconic, more or less circular or lunate in outline, and flattish or very slightly convex at the top, with a transverse fissure 2½-5 lines deep, of a pearl-grey-ochreous or pearl-grey, violaceous colour, marked with branched lines. Flowers unknown. Capsule about 4½ lines in diameter, 5-celled.

Mesembryanthemum Eberlanzii, Dinter in *Fedde Repert., Beihefte*, vol. XXIII, p. 43 (1923), and Dinter and Schwantes in *Zeitschr. f. Sukk.*, vol. II, p. 25 (March, 1925).

Great Namaqualand: On Kuckaus-Pockenbank Flats, Dinter, and on Kovis Mountains, Eberlanz. *N. E. Brown.*

(To be continued).

NOTES FROM WISLEY.

THE flowering period now covered by Crocuses is a very long one, and from autumn to spring one may nearly always find some Crocus species in bloom at Wisley. At the present time, the yellow-flowered Crocus Korolkowii, and the lilac C. laevigatus are in flower. The latter properly belongs to the autumn-flowering species, although it is one of the latest to bloom.

In the alpine house the brilliant blue flowers of Lithospermum rosmarinifolium are conspicuous. The only other blue flowers to be seen are those of Omphalodes Luciliae, which belong to the same order, but they are of a very much paler hue. Many pretty Saxifrages of the Kabschia group are now flowering, such as Saxifraga Burseriana major and S. Kellereri which is a hybrid raised in the royal gardens of Bulgaria. Another attractive hybrid is one named "Ada," which bears some of the characteristics of S. lilacina. The recurving petals are white, faintly tinged with mauve, and enclose a ring of red anthers.

At the summit of the rock garden, a group of Primula Winteri has been flowering since December 1. It is very noticeable that the most robust plants are those which are best protected by the overhanging rock.

A wild belt, consisting chiefly of Conifers, has been planted along a portion of the north side of the gardens; this should favour the growth of many of the less hardy shrubs situated in the wild garden, which have frequently suffered on account of cold winds.

Among the Oak trees, Hamamelis mollis is flowering. The same species is also to be seen in the shrub borders, where the taller H. arborea is in flower. The flowers of the latter are smaller, yellower and have twisted petals, but lack the delicious fragrance of those of H. mollis.

Commercial fruit trials are now being conducted in conjunction with the Ministry of Agriculture, on the new ground taken over by the Royal Horticultural Society at Wisley. About fifteen acres have been planted with fruit trees, including most of the well-known varieties and many new ones, which may possibly have market value. *J. E. G. White.*

NOTES FROM EDINBURGH.

THE influence of the recent spell of mild weather upon plant life is revealed in the early opening of some flowers on plants of Daphne Mezereum in the rock garden. Not far away are the rich yellow flowers of Hamamelis japonica arborea, whose praises have already been sung. This is a taller growing plant than the type, which is further distinguished by its lemon yellow flowers. There is another free-flowering variety cultivated under the name of H. j. Zuccariniana, which has pale yellow petals, a greenish brown calyx, and further commends itself to cultivators by the production of finely-coloured foliage in early autumn. Hamamelis japonica was introduced from Japan in 1862, but it was not until 1898 that the finest species was introduced in the form of H. mollis, a native of China. Not only is this the finest species of the genus, but it is also one of the finest flowering shrubs in cultivation, and the Royal Horticultural Society performed a graceful act in selecting this plant as the first recipient of the Award of Garden Merit.

Under glass, there is, as usual, a number of interesting plants in flower. In the corridor there is a fine specimen of Camellia japonica, with double pink flowers. The plant is trained on a wall, and when in full flower is a very handsome and decorative subject. There is also a double white-flowered variety, C. j. candidissima, but this does not appear to have the substance of the pink variety as the flowers fall to pieces more quickly. A plant of Jasminum primulinum trained up a pillar in the Centre House, now presents its large, pale yellow flowers.

The Leguminoseae supplies us with a very handsome decorative plant in Chorizema splendens ilicifolium, a native of Australia. The red and brownish-yellow colour of the flowers, combined with the small, Holly-like leaves render it valuable for decorative use. Another decorative plant is Eugenia apiculata, which possesses fine green leaves and produces a quantity of shining black berries. In the Palm House is a very tall specimen of Eugenia myrtifolia, which produces both flowers and fruits in abundance. Indeed, it flowers practically the whole year round, and its fruits are pink in colour. Fuchsia parviflora is another valuable fruiting plant. It produces its small, deep pink flowers freely throughout the spring, summer and early autumn, and these are succeeded by shining, black fruits produced in equal abundance. It is a rather tender plant, but succeeds well in the Rock House at Edinburgh and with its modest requirements and its ornamental features should be more widely cultivated than it is.

Among stove plants, Aphelandra aurantiaca Roezlii is of considerable value as an ornamental subject, its flowers being surrounded by bracts of a fine red colour; it readily responds to pot culture. Recently, a member of the Bromeliaceae was worthy of notice—Billbergia Saundersii—a plant of garden origin, with peculiarly variegated foliage. The flowers are very handsome, consisting of a dark blue corolla associated with red, while the stamens produce an abundance of golden pollen. *Robert H. Jeffers, Edinburgh.*

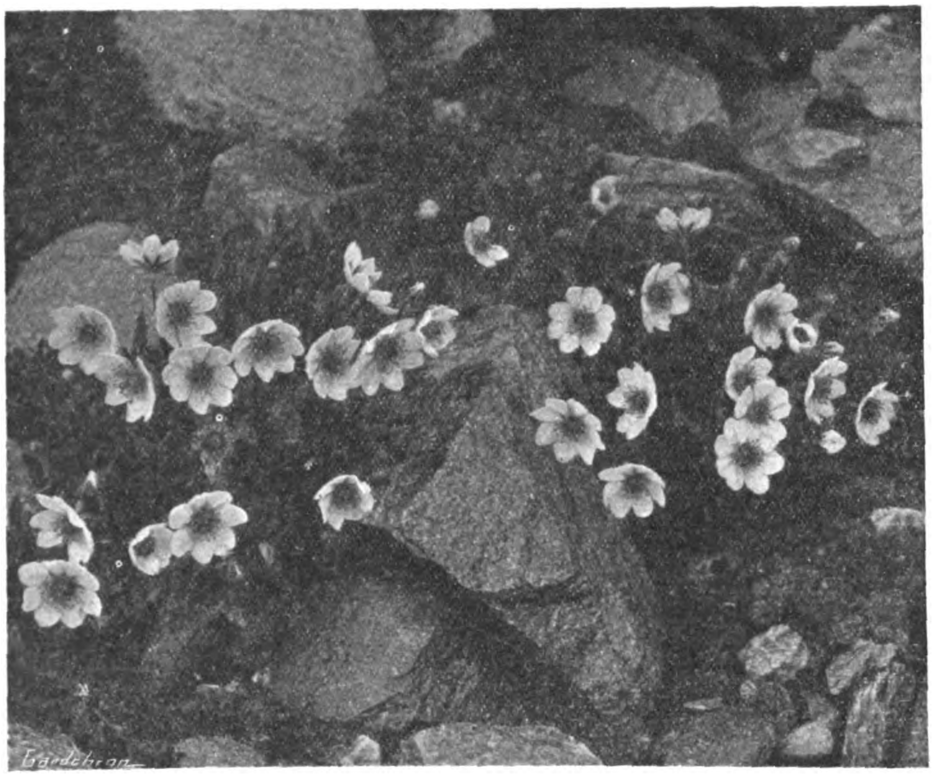


FIG. 42. DRYAS OCTOPETALA ON THE TOURLMAN GLACIER.

ALPINE GARDEN.

DRYAS OCTOPETALA.

THIS charming species of Dryas is probably the best of its genus for garden ornamentation; given a position in full sunshine on a rock garden and planted in a compost of crumbly leaf-soil, loam and sand, it will make dense mats of bright, toothed leaves, which are bright green above and silvery beneath. Even when not in flower a good specimen is a delight, but when summer comes and the plant is studded over with its pure white, wild-Rose-like flowers, each with its central bunch of yellow stamens, the picture is one of satisfying beauty to all except those who need a blaze of colour to arrest their attention. In its native Alps (Fig. 42), Dryas octopetala thrives in limestone formation, although it does not despise granite. Under successful cultivation, the species may be increased by division, or by layers. Plants may also be raised from seeds but this is a slower method.

SOME LINARIAS.

ONE of the least rampant of the trailing Toadflaxes is Linaria (Chaenorrhinum) origanifolium, a trailing alpine from the Pyrenees. It makes a neat little mat of dull green foliage which is adorned the summer through with purple blooms. In a free, warm soil, L. origanifolium will prove quite permanent, but it is a sun lover, and in certain districts may be the better for some protection from excessive rain and soil splash. It is an admirable subject for a dry moraine.

L. alpina is generally accorded the place of honour in this genus, and well it deserves it, for in all its forms it is a singularly charming plant. Unfortunately, however, it is by no means perennial in many gardens, the plants even though self-sown, gradually disappearing through no apparent cause. It has been stated that fresh soil will restore L. alpina as basic slag will bring Clover into a lawn, and there is doubtless something in the assertion.

L. hepaticaefolia, the smallest in leaf and flower of the creeping species, is a beautiful little plant, hugging the soil or the rocks as closely as Arenaria balearica and all the season through its pretty foliage is beset with the little purple flowers. But delightful as it is, even this dainty thing is not one to risk among the choicer inhabitants of the rock garden. I use it about steps and flagged walks, where it can safely be left to ramp as much as it will, and for such a purpose it is an ideal subject.

Many of the annual Linarias are very lovely with their slender, Flax-like stems and terminal spikes of many-hued flowers. Few annuals are more easily grown, the seed being sown thinly in spring where the plants are to flower. L. reticulata, with purple flowers, and its varieties in rosy-lilac, orange and other tints, is one of the best of these. L. maroccana, which gives us violet, blue, pink, rose-carmine and other shades, should also be noted. Then there is L. multi-punctata, only about six inches tall, with velvety black flowers speckled with gold, and various useful hybrids. All of the above, save L. multi-punctata, are about one foot in height. They should be sown in generous patches to be effective. *J.*

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PROPAGATION OF IVY BY ITS LEAVES.

During the investigation of a fungous disease of the Hop plant, it was desired to secure gradual decay of the leaves, in which thick-walled resting spores are formed. In a recent paper,[*] Dr. J. S. Bayliss-Elliott and Miss O. P. Stansfield stated that Ivy leaves, when buried, decay very slowly, and can therefore be utilised for the subsequent location in the soil of other more easily decaying leaves buried with them. In employing this method in the present instance, it was by chance observed that some of the Ivy leaves had developed adventitious roots.

It is interesting to recall in this connection that certain species of plants are known to give rise vegetatively to new plants by the formation of roots and aërial shoots on their leaves. In some cases adventitious buds develop viviparously on the uninjured leaf; Asplenium bulbiferum and the various species of Bryophyllum are widely separated instances in which this normally occurs. The abnormal development of buds or leafy shoots on the leaf and leaf-stalk is not infrequent; of this there have been records in the Cabbage, Tomato, Crown Imperial, Calliopsis (C. tinctoria), Cuckoo Flower (Cardamine pratensis) and the Bulbous Buttercup, to mention but a few plants of differing habits and affinities.

As is well-known, the development is often stimulated by injury to the leaf, particularly where severance of the vascular bundles is involved. Indeed, in many cases injury to or removal of the leaf is an essential preliminary to bud development; a remarkable instance is recorded by Caspary[†], who, by making incisions, obtained the development of over a hundred "male" flowers on a single leaf-stalk of a Cucumber plant. The stimulus would in these cases appear to be given by the abnormal accumulation of plastic foods in the leaf as a result of the interruption of the usual path of translocation to the stem. A new plant, however, can only develop from foliage in those species possessing leaves which are able not only to regenerate by the production of adventitious buds and roots, but also, due to structural or physiological peculiarities, to tolerate the severe restrictions on water supply until roots are developed—no mean feat when the activities of a normal leaf are considered.

These facts explain the limitations to the utilization of leaf cuttings, though it is a well-known method used in the propagation, for instance, of the choicer kinds of Begonia semperflorens and certain other species as well as garden varieties of Begonia, Bryophyllum, Gloxinia, Achimenes, Ficus, Peperomia and also of many succulent xerophytes. The details of the actual practical operations in the present instance are worth recording.

On November 18, 1924, several nine-inch pots were prepared in the following manner. Two-thirds of the pot was filled with loam; on this was placed a layer of about two inches of fine gravel and sand, which was then covered with freshly gathered Ivy leaves, the stalks of which were nipped off close to the leaf in order that this layer should be as flat as possible. The portions of Hop leaves which were to decay were next placed in position, and a further single layer of Ivy leaves deposited on them. Dry silver sand was poured on to this uppermost layer of leaves until sufficient had been added to keep the somewhat springy leaves pressed down. Here and there, at the edges of a pot, part of an Ivy leaf might be seen projecting. The pots, thus prepared, were placed on wide, gravel-covered shelves of an unheated greenhouse, and after one thorough watering, the surface sand remained damp for several weeks. Only occasional waterings were given, but as the weather became warmer, the pots were placed close to others containing growing plants, and they then received a share of the watering at regular intervals, without special attention being bestowed upon them.

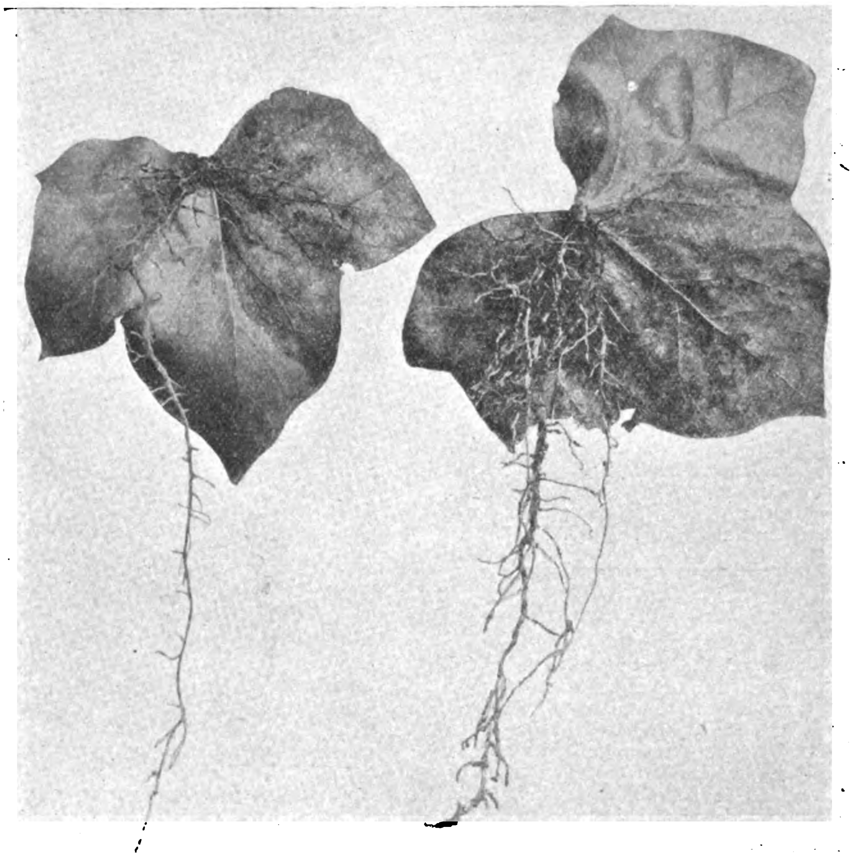

FIG. 43.—DEVELOPMENT OF ROOTS FROM IVY LEAVES WHICH HAD BEEN BURIED THIRTEEN MONTHS.

Some of the pots were "turned out" in the spring months for examination of the remains of the Hop leaves, but three, no longer required, remained in the house, and were more or less neglected from the end of July onwards. For several weeks they received no water, and during the summer the sand was often quite dry. Occasionally, during autumn—more by chance than by intention—they received water, and moss and weeds were growing on the surface when the pots were finally "turned out" on December 15, 1925—thirteen months after "planting." It was then found that several of the Ivy leaves had developed long roots from the point at which the petiole had been nipped. Some of the leaves had turned brown in parts, but none was completely decayed. One only, of those which had rooted, was brown over a quarter of its area; the others were still green. A cap of callus tissue had grown over the exposed end of the petiole (6–7mm. wide), and the roots had their origin at this callus. Of the two leaves illustrated in Fig. 43, one was five-and-a-quarter inches broad and three-and-three-quarter inches long, the other four and-three-quarter inches broad and three-and-a-half inches long. From the callus of the former there were two roots seven inches and five-and-a-half inches long and from that of the latter there were four roots which branched immediately. The longest was eight inches. No effort to produce above-ground parts appeared to have been made: there were small projections on or near the callus, but it was not determined whether these were adventitious buds or young roots.

There is no point of great economic importance in the above observation, but it indicates that Ivy, so often a pest in shrubberies, may possibly be distributed by clipped-off leaves which have been left on the ground or lightly covered. Beyond this, the phenomenon is probably only a matter of interest. *R. T. Pearl and W. M. Ware, South Eastern Agricultural College, Wye, Kent.*

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[*] Bayliss-Elliott, J. S., and Stansfield, O. P. The Life-history of Polythrincium Trifolii, Kunze. *Trans. Brit. Myco. Soc.*, IX, 218-228, 1924.

[†] Caspary; Blutensprosse auf Blattern. *Schriften d. phys. okonom. Gesellsch.* XV: 99. 1874.

DAFFODILS IN TASMANIA.

THINKING it may interest some of your readers, more particularly those who are growers of the Daffodil, I enclose a photograph of some of the recent productions of our leading Tasmanian hybridist, Mr. J. H. Hinsby, of Taroona, near Hobart, who is known in Tasmania, as the late Peter Barr was in England, as the Daffodil King.

A surveyor by profession, Mr. Hinsby enjoys the distinction of being known throughout Tasmania as a pastmaster in the art of hybridising, not only the Daffodil, but several other flowers. The Carnation in particular has claimed much of his attention in recent years, and we owe him much for the results he has achieved. However, I will confine my notes to a brief description of the Daffodils under review (see Fig. 44).—No. 1 is a very clear-coloured Incomparabilis, raised from an unnamed seedling × Tamerlane and produced this first bloom in September last. No. 2 is a 1922 seedling named Mimosa. It is very deep gold colour, with strong perianth, and large, level trumpet; it has twice been awarded chief honours for a yellow Ajax variety. Its parents are Monarch × P. R. Barr. No. 3 is a Leedsii variety obtained by crossing a fine Giant Leedsii seedling on to Mermaid. This produced its first flower in September, 1925. No. 4 has also Mermaid as one of its parents; in this case Mermaid was crossed with Banjo (Patterson; poeticus). No. 3 and 4 will undoubtedly improve next season, but already they have won many admirers.

No. 5 is a very rich, velvety yellow self named Eldorado, and is the product of Monarch × Queen Anne (Jonquil). No. 6 is the result of crossing Madame de Graaff with Minnie Hume (the latter being the seed parent), and it has a pure white trumpet, good in every respect; it has an exceptionally long stem, and is a fine grower. Nos. 5 and 6 were first shown in 1923. Nos. 7 (Maud K.) and 8 (Linda K.) are two very fine bicolor trumpets of great substance, yet carrying that refinement necessary in a show bloom. Of the set shown in the photograph (Fig. 44), No. 2 is perhaps the only one faulty in the perianth segments; it will be noted that these are narrow, though strong. This variety has excellent perfume, however, and proves to be extremely prolific and free blooming.

It may surprise some of your readers to learn that many of Mr. Hinsby's best seedling Ajax varieties are indebted to the old Queen Anne Jonquil for parentage, and many of the seedlings carry the unmistakably rich perfume of the old Jonquil. At the annual Daffodil show of the Hobart Amateur Horticultural Society it is not unusual for Mr. Hinsby to exhibit over one hundred seedling Daffodils, comprising Ajax, Incomparabilis, Leedsii, Barrii, Triandrus and poeticus varieties; his latest and perhaps most sensational seedling is of the poeticus type, with large, pure white, overlapping, perianth segments, perfectly flat, and circular, with an "eye" which is very double, carrying blends of citron, orange, white and gold. I regret very much not being in time to obtain a photograph of the first bloom, which was christened Vera Robinson. I hope, however, to forward a photograph next season for the benefit of those British friends who are interested in Daffodils.

In conclusion, I may mention a beautiful deep golden Ajax variety, with a trumpet of immense size and long stem, named Peter Dawson; a bicolor of great quality named Green Mantle, and a pure white trumpet Daffodil of splendid quality, named White Icicle, all of which have already gained the highest awards at our Daffodil exhibitions. *W. J. McWilliams Hobart, Tasmania.*

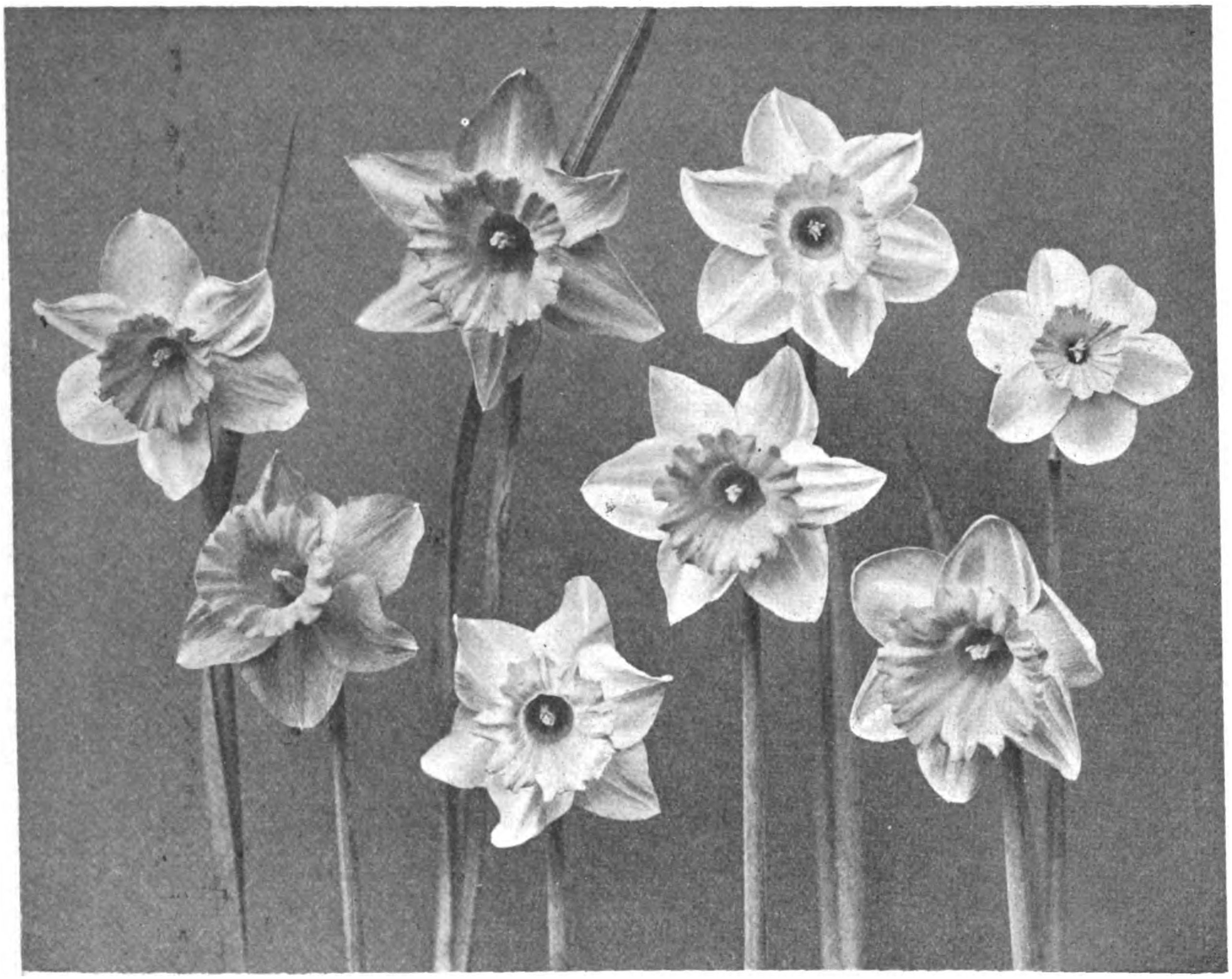

FIG. 44.—NEW TASMANIAN DAFFODILS.

No. 1 (1925). No. 2 (1922). No. 3 (1925). No. 4 (1925).
No. 5 (1923). No. 6 (1923). No. 7 (1924). No. 8 (1924).

SNOWDROPS.

THE season of the Snowdrop is now almost with us again, and I have been looking up the various contributions made to *The Gardeners' Chronicle* during 1924 and the spring of 1925, when the point of discussion mainly centred on the question whether the Snowdrop in its wild state did or did not produce viable seeds.

Formakin stated that, so far as his observations went, it did not do so, but later, in the issue of November 15, 1924 (p. 340) he quoted a letter from Professor Wright Smith, Royal Botanic Garden, Edinburgh, to the effect that, while seeds, removed from their capsules and sown immediately on their arrival from *Formakin*, had failed to germinate, other capsules which had been left on a light dry shelf until thoroughly ripened, had produced a few seeds which had germinated.

This, following upon the opinions expressed by Sir Herbert Maxwell—*Gard. Chron.*, April 5, 1924 (p. 189); A. T. Johnson, (ibid. p. 211); S. Arnott (ibid. p. 227); M. Weiss (ibid. p. 223): Parkin (ibid. p. 185): and F. H. Chapman (ibid. p. 65), seemed to settle the point that the Snowdrop is capable of reproducing itself from seeds. But when your correspondent Mr. A. T. Harrison, Culzean Castle Gardens, in May last stated (p. 303) that it seemed to him that the former correspondence had left the question in doubt, I wondered. I gathered and sent him a number of capsules in June. Acknowledging these, he wrote me that one thing that impressed him about capsules produced here was that in June they were still very green, and that they seemed to be almost at the same stage then as those which he had sent to you nearly two months before. I take it that this long continued greenness is a sign of continued activity in that the development of the seeds is still progressing. This seems very probable in view of Mr. Harrison's subsequent experience. In September he wrote me that he had then depodded the Galanthus nivalis capsules and obtained 180 plump seeds, but that from capsules "gathered and ripened" at Culzean he had "failed to get any seeds whatever." This astonished him greatly, and he sent me a number of these seedless capsules, which in outward appearance seemed identical with those I had sent him, except that his were more flattened. This I attributed to their being sent in an envelope by post. It was this somewhat amazing difference of behaviour that made me look up the earlier contributions on the subject and trouble you with this one. Seeing that while seeds are produced freely here, also at Rye (Sussex), and sparingly, if at all, at Culzean, Ayrshire, also sparingly at Formakin and at Ardgowan in Renfrewshire (as *Formakin* informs me), the question arises, "What is the reason for such difference of behaviour?" and I put forward the point in the hope that some with more leisure and more capabilities to investigate the subject will take it up.

A small exchange of bulbs has taken place between Mr. Harrison, *Formakin* and myself. In my own case, I have planted the bulbs in soil of a character as nearly approaching that in which Snowdrops do well here as I could make it up. During the flowering time, by leaving certain rows to be either self-fertilised or fertilised by insects and other lines to be regularlyartificially pollinated, if that be possible, I hope to find out whether there is any difference in behaviour as to seeding between the bulbs from different sources. I have not this season counted the bulbs at planting to ascertain their rate of increase by division.

Recently, I had the pleasure of a talk with Professor Wright Smith, and, as the outcome of it, while not ruling out the possibility of there being in the south a greater insect fertilisation I hazard the suggestion that here, with a medium rainfall (under 27 inches) and usually a somewhat dry spring with usually a hot spell in summer—and at Rye with similar conditions and a rainfall of 26 inches—the Snowdrop receives a check which induces it to resort to seed formation, whereas on the west coast of Scotland, where, as at Formakin, the average rainfall during the past four years amounts to something like fifty inches (almost forty inches average in six years) at Culzean, and thirty-six inches at Monreith, the impulse given to the roots may be rather to increase by bulb division than by producing seeds.

This theory seems to have some force of reason given to it by the statement by *Formakin* (*Gard. Chron.*, July 12, 1924, p. 28), "in a very few cases, and mostly on a bank which is well sheltered and fully exposed to the sun at midday, are to be found some large, plump, green fruit capsules (possibly where insects disport themselves and pollinate the bloom)." Being on a bank in full sunshine they may thus have a much drier rooting medium and this, rather than insect fertilisation, may possibly account for the freer production of capsules (and seeds ?) than he finds is the case in other places where he grows his Snowdrops so well, but gets no seeds.

Another point which leads me to make the suggestion is that a clump of Snowdrop bulbs which *Formakin* sent me as dug up, and which he states would be produced from three to eight bulbs (dropped into a hole about three or four inches deep), planted not more than ten years ago (probably only seven or eight) contained a much larger number of bulbs than any clump I have lifted here. At present it seems to me that, with him and in wet districts generally the Snowdrop produces offsets more than seeds, while in drier districts it may incline more to seed-production.

In your issue of April 5, 1924, p. 189, Sir Herbert Maxwell invited *Formakin* to give him a visit in May, when he would "show him myriads of swollen green capsules." It would be interesting to know whether the capsules did contain seeds in any quantity, or were, as Mr. Harrison's proved to be, without seeds; or, like the most of *Formakin's* "only contained a little damp, pulpy sort of stuff, like cotton wool."

In *Gard. Chron.*, April 12, 1924, p. 211, Mr. A. T. Johnson wrote: "Snowdrops always set seed here, and I have little doubt but what they spread by that means."

If they do really produce much seed with him in north Wales, with a rainfall of about forty-two inches, that is against my theory, and I hope he will make some further observations to test the point. If he and the other growers who have interested themselves in this question will do so, it may be possible to get new light on the behaviour of the Snowdrop in different localities. Hitherto, we all seem to have been recording our own ideas without considering that there might in truth be another point or view and experience. *P. Murray Thomson, Hereford.*

FORESTRY.

THE INFLUENCE OF PROLONGED DAYLIGHT IN THE VEGETATIVE SEASON ON THE QUALITY OF CONIFEROUS TIMBER GROWN AT HIGH LATITUDES.

(*Continued from p.* 67).

A COMPARISON of the Coniferous timbers from high latitudes with similar samples from lower latitudes seems to bring out the fact that, although it has an undoubtedly great influence upon it, its superior quality cannot be accounted for on the assumption that it is entirely due to its being of natural growth. Naturally regenerated Coniferous forests, although they are of comparatively rare occurrence now, are not unknown in this country, and there are records of such in the past. One well-authenticated case from Scotland is recorded in Evelyn's *Silva,** in a communication from James Farquharson, Esq., of Invercauld, in South-west Aberdeenshire, on June 22, 1775. The particulars as given by Mr. Farquharson are as follow:—"The finest Fir-trees appear in the most mountainous parts of the Highlands of Scotland, in glens, or on sides of hills generally lying to a northerly aspect, and the soil of a hard, gravelly consistence, being the natural produce of these places. The winged seeds are scattered in quantities by the winds from the cones to the adjacent trees, which expand in April and May with the heat of the sun; these seedlings, when young, rise extremely close together, this makes them grow straight and free from side-branches of any size, to the height of fifty or sixty feet, before they acquire the diameter of a foot: even in this progress to height they are very slow, occasioned by the poorness of the soil and the numbers on a small surface, which I may say makes them in a constant state of war for their scanty nourishment, the stronger and tallest by degrees overtopping the weaker, and when the winds blow they lash against one another: this assists in beating off any horizontal branches that might damage the timber with knots, as well as by degrees crushes the overtopped trees. In such a state of hostility they continue struggling until the master trees acquire some space around them; then they begin to shoot out in a more bushy manner at the top, gradually losing their spiral form, increasing afterwards more in size of body than height, some acquiring four feet diameter, and above sixty feet of height to the branches, fit for the finest deal board. The growth is still extremely slow, as is plainly proved by the smallness of the grain of the wood, which appears distinctly in circles from the centre to the bark. Upon cutting a tree over close to the root, I can venture to point out the exact age, which, in these old Firs, comes to an amazing number of years. I lately pitched upon a tree of two-feet-and-a-half diameter, which is near the size of a planted Fir of fifty years of age and I counted exactly two-hundred-and-fourteen circles or coats, which makes this natural Fir above four times the age of the planted one."

Allowing one inch as the thickness of the bark, the radial measurement of this naturally-grown Fir gives an average of approximately fifteen annual layers of wood to the inch, and it is interesting to compare this rate of growth with some particulars which Professor Fraser Story gives in the *Quarterly Journal of Forestry* for 1921* of Scots Pine in the primeval forest of Bialowieska, in the Province of Grodno, in Eastern Poland, which he visited in 1920.

The forest of Bialowieska, which covers 470 square miles, is situated on a plateau at an elevation of 500 feet to 600 feet above sea level, at approximately the 53rd parallel of latitude. It is mixed, but sixty per cent. of the crop consists of Scots Pine, which ranges in age from eighty to 200 years, with here and there a veteran 300, 400, or 500 years old. "The high quality of its timber," Professor Story remarks, "is partly due, no doubt, to the age of the trees. The annual rings are very regular, and the heart wood broad and resinous, although one does not find the extremely narrow-ringed timber obtainable from trees grown in the Archangel district . . . . One Pine taken at random as it lay on the ground measured 110 feet in length to a point where the top was broken off; at the middle it had a girth of seven feet nine inches, and at four feet three inches from the butt the circumference was nine feet nine inches." From these measurements it is impossible to make an accurate comparison, but as the centre girth given here is practically the same as the basal girth of the naturally-grown Invercauld tree measured by Mr. Farquharson, assuming it to be approximately the same age at that point, it shows that the rate of growth in girth is very similar for these two latitudes, the one with a continental climate, at the latitude of 53°, and the other (Aberdeenshire) with an insular climate, at the latitude of 57°. But Professor Story's statement that there "one does not find the extremely narrow-ringed timber obtainable from trees grown in the Archangel district," makes it quite clear that the wood rings of this timber are broader than those of the North Russian timber, the best of which gives over thirty wood rings to the inch, and which may be considered to be among the finest-grained Scots Pine timber grown. *A. D. Richardson.*

(*To be continued.*)

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* New edition, with notes by A. Hunter, M.D., F.R.S., York, 1786, Vol I., p. 290.

* Vol. XV., p. 169.

ORIGIN, EARLY HISTORY AND DEVELOPMENT OF THE POTATO.

(*Continued from page* 49).

Introduction into Spain.

Loudon,[*] quoting Sir J. Banks, states that the Potato came to Spain in the early sixteenth century. From Spain, where Potatos were called "Battatas," they appear to have found their way to Italy, in which country they received the name "Taratoufle." Authorities differ, however, with regard to the actual date, which Krichauff[†] and De Candolle place between 1580 to 1585. Hieronymus Carden, a monk, is supposed to have been the first to introduce the Potato into Spain from Peru.[‡] Although there is no actual record, so far as the writer is aware, of a direct introduction into Spain from South America, the probabilities are so strong as to amount almost to a certainty. It would have been a very exceptional human occurrence if the Spaniards, coming in contact so much with the tuber, had not taken specimens back to their native land. Snell[§] states that the Potato was first cultivated in Spain in the Province of Galicia.

Introduction into England.

Apart from the presumed introduction into Spain, the Potato is supposed to have found its way into Europe from another and entirely different source. It has been stated very frequently that the Potato was brought to England in 1586 by one of Sir Walter Raleigh's ships on its return journey from the colony which Sir Walter established in Virginia in 1584. This statement has been subjected to a very thorough examination by Mitchell.[||] In 1584, under Royal patent granted by Queen Elizabeth to Raleigh, there sailed on April 27, a contingent of colonists who landed in July on an island, called Wokoton. Subsequently, they removed to another island, Roanoak, twenty-one miles distant. They took possession of this latter island on July 13, and named the district Virginia. The following year, Raleigh reinforced these colonists by sending seven ships to Virginia under Sir Richard Grenville. This flotilla reached Wokoton on June 26, and Roanoak immediately afterwards. Grenville remained until August 25, when he returned to England, leaving one-hundred-and-seven persons behind him. These settlers remained on the island for a year, under the government of Ralph Lane. Ships were sent to deliver provisions to the colonists, but in some way they were delayed. In the meantime, however, Admiral Drake, returning from an expedition against the Spaniards at Carthagena, and the West Indies, called to see how his fellow-countrymen fared, and took them on board his ships. They left Roanoak on June 18, 1586, and arrived in Portsmouth on July 27 of the same year. Sir R. Grenville, with three ships, arrived at Roanoak later, to find the colonists gone. A fourth voyage was made in 1587, and a fifth during 1590, but no subsequent attempt at colonising was made until 1606.

Raleigh gave up his patent on March 7, 1590.

It is reasonable to assume that if the Potato came to England from Virginia in Raleigh's ships some reference would be made to it in the writings of the returned colonists. However, the only record of a plant, which in any way approached the Potato, is that given in the report of Thomas Heriot[*] dated February, 1587, published in Dr. Bry's *Collection of Voyages*. Heriot described a plant called "Openauk." However, his description is written from memory, as when the settlers left Roanoak, the difficulties of embarkation were such that writings, etc., were left behind or thrown away. Heriot was a mathematician, and his observations would probably be fairly accurate. He states :—

> "Openauk are a kind of roots of round forme, some of the bignesse of Walnuts, some farre bigger, which are found in moist and marsh grounds, growing many together, one by another in ropes, as though they were fastened with a string. Being boiled or sodden, they are good meat."

However, he does not say that his "Openauk" was introduced to England, not is any reference to it contained in contemporaneous literature. Some authorities have assumed that the Potato was intended, but many others suggest that the description more aptly fits the Jerusalem Artichoke, which is indigenous to some parts of North America. The inference has also been drawn that the English botanist, Gerarde, who described the Potato in his catalogue in 1596, and in his *Herball*, in 1597, drew the "Openauk." It is worthy of notice, however, that, although Gerarde mentions that he obtained Potatos from Virginia—indeed, he gives them the name "Potatos of Virginia,"[†] —he does not use the word "Openauk," nor does he state from whom or in what year he received the Potatos. There is no proof of any connection between the "Openauk" of Heriot and Gerarde's Potato. The only facts about which one can be certain concerning Gerarde, according to Mitchell, are (1) he learned from Clusius that the Potato grew naturally in America, and (2) that he obtained roots from Virginia which he grew in his garden. In considering the question, moreover, the possibility of some mistake by mixing in Gerarde's garden must not be overlooked. *J. P. McIntosh.*

(*To be continued.*)

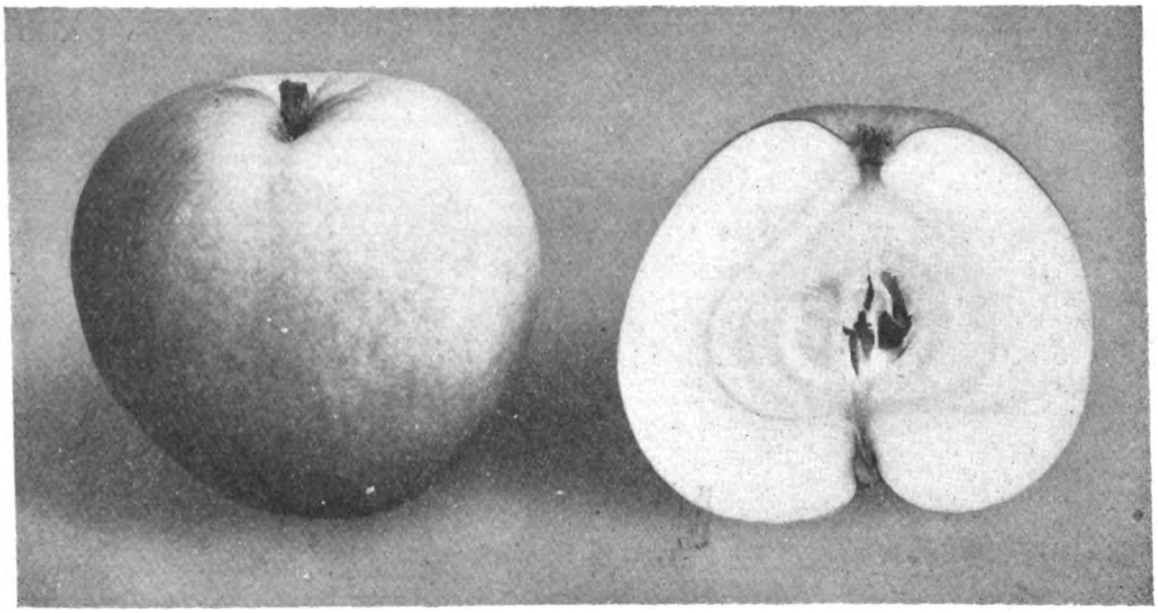

FIG. 45.—APPLE MOTHER.

FRUIT REGISTER.

APPLE MOTHER.

Of the numerous varieties of Apples which have originated in America none succeeds better in this country than Mother (Fig. 45), or as it is very frequently known—American Mother. It is of the Pearmain type and originated at Bolton, Massachusetts, but the year is uncertain, although it was recorded in U.S.A. before 1848.

This Apple stands high in the list of dessert varieties for quality, indeed, it is one of the best sorts in its season—October. The skin is yellow, covered with crimson on the side exposed to the sun and strewed with russet dots.

The flesh is yellowish-white, tender, juicy, sweet and richly flavoured. The fruits are of a size suitable for dessert purposes, and a dish of this choice Apple is often included in a collection of dessert fruits at autumn exhibitions.

The tree is a moderate grower and crops fairly well; it gives excellent results trained as cordons and fruits from cordon trees are of exceptionally fine quality.

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[*] *Encyclopaedia of Agriculture*, 1825, J. C. Loudon.
[†] *Journal Roy. Hort. Soc.*, Nov., 1895, Vol. XIX.
[‡] *Encyclopaedia Brittanica*, 11th edition.
[§] *Die Kartoffel*, 1922; Snell, Dr. K.
[||] Origin of the Potato," W. S. Mitchell, *The Gardeners' Chronicle*, 1886.

[*] "Origin of the Potato," W. S. Mitchell, *The Gardeners' Chronicle*, 1886.

[†] *The Herball*, John Gerarde, amended by T. Johnson 1633.

FOREIGN CORRESPONDENCE.

BUCAREST FLOWER SHOW.

THE third annual exhibition of flowers, fruits and vegetables, which was held in Parcul Carol, Bucarest, Roumania, on November 7 to 11, 1925, was a great success. Their Majesties, the King and Queen of Roumania, who again opened the show, were accompanied by the Crown Prince and Princess, the ex-King George of Greece, The Princess Bibesco, also the Prime Minister, Mr. V. Bratianu, and Madame Bratianu, who takes a great interest in the show.

The King made a short speech on the lovely flowers and fruits which were exhibited, wished the society great progress, and complimented all who had helped to make the show a success. The President, Mr. C. Farando, responded to the King's speech, and thanked him on behalf of the society for coming to open the show. He stated that the weather had been unfavourable to gardeners at different periods of the year, and hailstorms had done much damage in different parts; the intense heat in August had also affected their gardens adversely.

The chief competitors were Messrs. C. Farando and Sons, Bucarest, who showed very large blooms of Chrysanthemums in perfect condition, the varieties including William Turner, Yellow Turner, and Daily Mail (*Hors Concours*); M. Jean Lacroix, Bucarest, who had a mixed group of Palms, Chrysanthemums, Begonias, etc., also a fine collection of fruit trees arranged in the open (Gold Medal of Premier); M. Theobald Scheidegger, Bucarest, who staged a finely-arranged group of mixed Palms, Ferns, Begonias, Chrysanthemums, etc. (Premier Gold Medal); M. F. Wilk, Codlea, Brasov, a specialist in Cyclamens and American Carnations, who had a group of very fine specimens of these plants (Gold Medal): H.M. The King (gr. Mr. F. Rebhuhn), who showed a decorated table a grand display of Cyclamens, etc. (*Hors Concours*); Prince Bibesco, Mojosoca (gr. J. W. Funge), who put up a magnificent mixed group of Single Chrysanthemums, Mary Richardson, Sylvia Slade, etc; Streptocarpus, Violets Princess of Wales and Lady Hume Campbell; Cypripedium insigne, and Geraniums, the colours of which were greatly admired, also a vase of English Carnations, including Saffron, Minerva, Topsy, Red Ensign, and White Pearl (Premier Gold Medal); M. Bratianu, Prime Minister, who showed a fine collection of fruits including Apples, Pears, Grapes, etc., all grown outside. The Muscat of Alexandria Grapes were well coloured and equal to those grown under glass (Premier Gold Medal); many more small exhibits were shown from different parts of the country.. *J. W. Funge, Palatul Mojosoca, Gara Buftea, Jud. Ilfov, Roumania.*

HOME CORRESPONDENCE.

Gardening in France.—Having just returned from a twelve months' sojourn in France, the differences in the gardening conditions existing in the two countries are worthy of note in the horticultural Press. Garden staffs have been reduced there but not to the extent in this country, and, generally speaking, the condition of most estates, from a horticultural point of view, in France, is not nearly so bad as in England. The trim tidiness of the English garden with its smooth grass lawns and efficiency of pre-war days was never equalled in France, in my opinion; the necessary preparation and after-care not having been given to grass areas, and the mowing, rolling, edging and general upkeep were not attended to with that meticulous care and thought which were given to them in this country. The mowing to-day is in a very backward state, and is done, even in the public parks and gardens of Paris, with a side-gear machine without grass-box, the grass being raked and swept up after cutting. The machines are mostly of American manufacture, and I found it impossible to obtain a roller and chain-driven machine with grass-box at short notice in May, in any of the large Paris stores, and was compelled to order in England. While the import duty was high, the saving of time and labour, to say nothing of the superior quality of the work done, quickly repayed the extra outlay. Unlike his confrère here, the French head gardener has great difficulty in finding enough men to complete his staff. Statistics recently published give the number of foreigners employed in France as nearly 3,000,000. Many men who were formerly employed in gardens have entered other industries where the call was more insistent, or the remuneration higher, leaving the gardening ranks depleted. The general prosperity of the country is very great. Kitchen gardening plays a very important part in France, and great care is given to providing an ample supply of saladings and *primeurs*, or early vegetables, fruits, etc., mostly by the hot-bed system of frames and lights, the French people eating raw salad of some kind with the mid-day and evening meals all the year round, if obtainable at a reasonable price. Their strains of Cauliflowers, Broccoli, Peas and Broad Beans, are not considered so good as ours, but their Lettuces, French Beans, Asparagus, Artichokes and others probably excel ours. The practice of covering all glass structures with Rye-straw mats in winter, in the place of the summer sun blinds, could be followed with advantage here, as I have recently seen 12° Centigrade of frost kept out by that means, thus economising in the matter of fuel—a question of vital importance here as in France. There is also a great revival in landscape gardening in France, and here again the difference of style is very marked. The prevailing style is that of the period of Louis XIV, with its long, straight avenues of trees, walled terraces, right angle bedding and rectangular sheets of water, similar to those at the Château de Versailles, and where the area is sufficiently large something of the majestic effect there obtained may be reproduced. In smaller places, however, the grandeur is lost without any compensating advantages, neatness, notwithstanding, never being entirely absent. The beautiful curves and undulations of our English landscapes, with their harmonious blending of natural shaped sheets of water and ornamental, bedding designs are more appealing to English taste. The French, in the past, have not been so thorough with their landscape work as in this country, and the magnificent ornamental trees which distinguish the grounds of our older English mansions have no counterpart in the demesnes of the châteaux of central France although the climate is no bar to their successful growth, as witness the rows of Paulownia imperialis which have been planted as avenue trees in the streets of Paris and the smaller French towns; these trees flower well most seasons. The noble Lebanon Cedars, so common here, are seldom seen, and an avenue of Sequoia gigantea, such as can be seen at Savernake, does not exist, while the Tulip Tree (Liriodendron) and Gingko biloba are not met with, except as quite small specimens. *Ben H. Martin.*

Perpetual-flowering Carnations.—I unfortunately overlooked Mr. Roy's letter, but my note was mainly written to growers who produce nothing but poor Carnation blooms, which are an undoubted danger to all interested in Carnations. As Mr. Roy follows out the wise method of propagating only from the best selected cuttings, consigns weak plants to the rubbish heap, and grows his plants with an abundance of ventilation and a minimum of fire-heat, my observations do not apply to him. Nevertheless, he is wrong in surmising that our nurseries are so close together as Haywards Heath and Wivelsfield; our wholesale, cut-flower nurseries are at Clayton, just off the South Downs, where the soil is totally different to our heavy clay at Wivelsfield; further, the climatic conditions are different to those in the Weald of Sussex, so there is a considerable change for the stock from one nursery to the other. We also periodically import fresh stocks of American varieties solely with the object of maintaining a sound constitution in our plants. I am obliged to Mr. Roy for his letter, because all discussions on the cultivation of Carnations are useful. A Carnation specialist regards those who produce good Carnations as his best friends, realising that the future prosperity of the flower rests upon its good reputation and a high standard of quality among private growers. *Montagu C. Allwood.*

Onions.—I have been interested in Onion growing for many years, and was surprised to read an article in *The Gardeners' Chronicle*, by Mr. George H. Copley, (p. 34, vol. LXXIX), advising growers to pot off Onions seedlings into thumb pots. Such a proceeding entails a lot of labour and is quite unnecessary to the production of a good crop of Onions. The seeds may be sown thinly in boxes four inches deep, with a layer of fresh horse droppings in the bottom; and the seedlings may be hardened off and planted in the open without further preparation. The plants root into the droppings and may be lifted with good balls of roots, but I have noted that the little plants always make fresh roots from the base after planting. It is not necessary to wait for a particular time to feed the crop; there is no critical time, and one may feed the plants so soon as they are established in their permanent quarters, and continue to do so up to the time they show signs of ripening. Premier and Ailsa Craig are, to my mind, only other names for Cranston's Excelsior. *Grigor Roy, Stoke d'Abernon Manor Gardens, Cobham.*

The Destruction of White Fly.—I have followed with interest the notes by your various correspondents on white fly. As one who has had experience with cyaniding for over twenty years, I wonder it is not more commonly resorted to by growers as I have found it a sure destroyer of white fly, and there is no need to do any spraying as advised by Mr. Meyer. All foliage should be absolutely dry, and the roots as dry as possible without allowing the plants to flag. Chrysanthemums in full bloom, and the delicate young fronds of Adiantum cuneatum will be uninjured if the instructions of the makers are carried out. I have found October or November the best season to use the cyanide, after the plants are housed for the winter, and before forcing has commenced. Then it is easy to keep all plants on the dry side without injury to them. From my experience with white fly, I do not think it survives our winters out-of-doors, therefore, every precaution should be taken to see that the pest is cleared from all frames as well as houses at this time. I have got rid of it with two cyanidings, but to be safe, three are advisable at an interval of a week to ten days. *A. W. Kidley, Aelybryn Gardens, Llanelly.*

——It does not seem to be generally known that "Abol" will kill white fly, used a little stronger than is recommended by the manufacturers for green fly. Either dip the plants in or spray them with the Abol. I have known white fly since 1888.. *Alfred Simeson, Everlands Gardens, Sevenoaks.*

——The observations by Mr. Meyer (page 35), are extremely interesting. His experience with tetrachlorethane, or one of its preparations, has indeed been remarkable. I should have thought that any substance capable of injuring any species of Crassula would have killed such a frail creature as the white fly. In the instance recorded in my note no serious damage was done. It is only fair to state, however, that flowers of the lighter shades of Pelargonium were injured, but no foliage was adversely affected. Of the efficacy of the treatment I have no doubt whatever. The house is now free from the pest and no other treatment has been given. Only a close and systematic investigation could expose the reason why three fumigations with tetrachlorethane usually destroys white fly. It would settle the question of whether the eggs are vulnerable at certain stages and whether the nymphs are destroyed. After I had read Mr. Meyer's letter, I wondered whether the house was quite dry when the chemical was liberated. This I believe to be quite as important when using tetrachlorethane as it is when using a nicotine fumigant. *George H. Copley, N.D.H.*

SOCIETIES.

BRITISH CARNATION.

THE annual general meeting of this Society, which was held at the R.H.S. Hall, Westminster, on January 12 last, under the presidency of Mr. J. S. Brunton, was rather poorly attended. Those present included Mr. W. E. Wallace, Mr. C. Engelmann, Mr. G. Allwood, Mr. M. Allwood, Mr. W. H. Page, Mr. H. T. Mason, Mr. E. F. Hawes, Mr. T. Stevenson, Mr. R. F. Felton and Mr. E. T. Willis.

The committee's report for the year ending December 31, 1925, recorded a membership of 356, and made special reference to the exhibitions which had been held during the year. Besides a gratifying increase in membership, there have been twenty-five new varieties of Carnations registered—the largest number in one year for a considerable period. During the past year the Witwatersrand Carnation Society of Johannesburg has become affiliated to the British Carnation Society, and it was stated that there is a fast increasing interest shown in Carnations in the colonies.

With the view to obtaining as full a record as possible of Carnations registered throughout the world, and to prevent duplication of names, it was agreed to ask affiliated societies to communicate the names of varieties registered by them. Mr. W. E. Wallace, the retiring chairman of committee, stated that he had written to the American Carnation Society asking for a list of their registered varieties, and the secretary of the B.C.S. was instructed to supply the American Society in return with a list of British registered varieties. The committee's report was unanimously adopted.

In presenting the financial statement, Mr. E. F. Hawes expressed great satisfaction with the Society's condition, and said he was particularly pleased to find that subscriptions generally had been paid very promptly. He was of the opinion that the two shows had been managed as economically as circumstances permitted. He reported a balance in hand of £57 17s. 11d., which, added to the previous balance, made a total balance of £107 3s. 5d On the proposal of Mr. H. T. Mason, seconded by Mr. T. Stevenson, it was agreed in future to show a profit and loss statement concerning the Society's *Bulletins*.

Mr. W. E. Wallace was enthusiastically elected president for the ensuing year, and in taking the chair, Mr. Wallace paid a tribute to the good work done for the Society by the retiring president. Mr. H. T. Mason was re-elected chairman of committee, with Mr. C. Engelmann as vice-chairman, and the hon. secretary and treasurer were re-elected. The following were elected to fill vacancies on the general committee :—Messrs. F. W. Aylesworth, D. Campbell, C. Engelmann, junr., —Hyde, F. Jordan, Jack Page, T. Paterson, T. Pinches, —Pulbrook, S. Salway and W. A. Sherwood. The hon. auditors, Messrs. E. F. Hawes and T. Pinches were re-elected.

THE ORCHID CLUB.

THE meeting held on the 15th ult., was rendered interesting and important by the extensive displays of Cypripediums staged by G. F. MOORE, Esq., Sir GEORGE HOLFORD and other members, illustrating the progress which has been achieved in the hybridisation of this genus.

PREMIER DIPLOMA.

Odontioda Gardenia (Oda. Colinge × Odm hybrid); a large well-formed flower, three-and-a-quarter inches in diameter. The sepals and petals are marked with a large central blotch of Indian-red, and have a broad, white margin in which there is a radiating violet flare; the lip is large, flat, with a small Indian red blotch. Shown by Dr. CRAVEN MOORE.

DIPLOMA OF MERIT.

Odontoglossum crispum var. Caronia. A large, rosy-coloured flower, three-and-a-quarter inches in diameter and of exceedingly fine round form. The sepals have central clusters of small red spots, which also mark the centre of the well-formed lip. Shown by Dr. CRAVEN MOORE.

Cypripedium Lawrebel, Paul's var. (Lawrenceanum × bellatulum). A particularly fine and well-coloured form of this old hybrid. Shown by F. T. PAUL, Esq.

GROUPS.

G. F. MOORE, Esq., V.M.H. (gr. Mr. W. H. Page), exhibited more than 200 cut flowers of Cypripedium hybrids raised at Chardwar, illustrating the great progress which had been made in the evolution of this genus by progressive hybridisation enduring over thirty years.

The collection contained typical examples of the finest forms of the many hybrids which have been raised, and the interest of the remarkable results attained was emphasised by the presence of some of the original parents. The Gold Medal of the Royal Botanical and Horticultural Society of Manchester and the Northern Counties was awarded to Mr. MOORE as a record of appreciation of the advance which he had achieved by hybridisation in the genus Cypripedium. The more noteworthy varieties shown were :—Crysostom vars. Amy Moore, Chardwar var., Blanch Moore, Rover and Heroine: C. Memoria vars. H. J. Elwes, Rex, The Queen and Premier: C. Doris Stanton and C. Gwen Hannen.

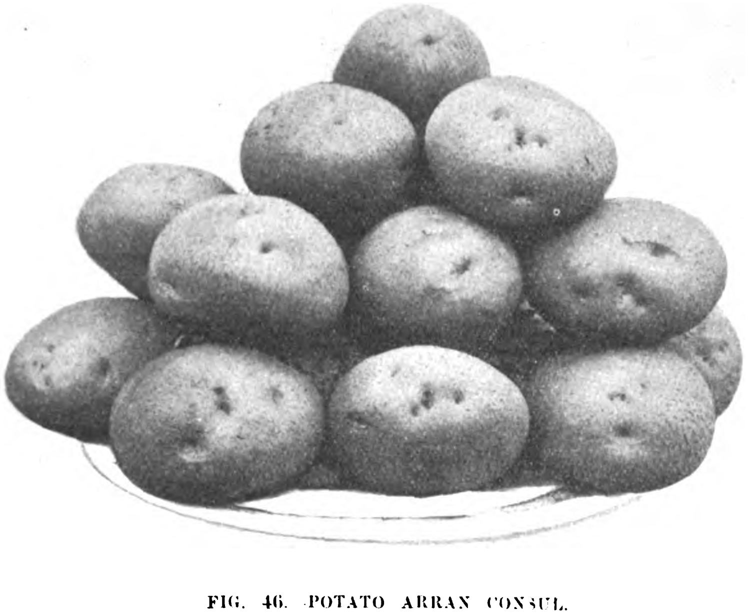

FIG. 46. POTATO ARRAN CONSUL.

Awarded the Lord Derby Gold Medal at the Ormskirk Trials, 1925 (see p. 74).

Sir GEORGE HOLFORD, K.C.V.O. (gr. Mr. H. G. Alexander), staged a small and elegant display of cut Cypripediums illustrating the lines on which this genus has been evolved at Westonbirt, the brilliantly coloured progeny of C. Fairrieanum being greatly admired. In addition to C. Reindeer, C. Baldur, Holford's var., C. Swallow, Westonbirt var., C. Marion Holford's var., C. Golden Fleece, C. Roundhead, C. Goldilocks, C. Minotaur, C. Ballet Girl, C. Lucifer, Holford's var.,C. Redwing and others; the exhibit included a brilliant form of Laelio-Cattleya Queen Mary, Sophro-Laelio-Cattleya Cynthia and the wonderfully coloured S.-L.-C. Falcon.

Sir WILLIAM THOM (gr. Mr. R. Williams), showed a fine collection of Cypripediums, including well-grown plants of C. Cappa Magna, C. Hermes, C. Maudiae, Westonbirt var., C. Briton's King, C. Elise var. Grand Monarch, C. Hestia, and a seedling of merit.

B. J. BECKTON, Esq. (gr. Mr. W. A. Stewart), staged an attractive display of Calanthes, Cypripediums and botanical Orchids, among which mention may be made of Calanthe Angela, Cypripedium J. M. Black, Beckton's variety, C. Ballyhandy, C. Roundhead, Westonbirt var., and a fine pan of Haemaria discolor.

Dr. CRAVEN MOORE (gr. Mr. W. Gilden), had an effective group of Odontoglossums and Odontiodas carrying full spikes, among which were strong plants of Odontioda Henryi, Oda. Joiceyi Odontoglossum amabile splendens, and several fine varieties of O. crispum.

A. T. CUSSONS, Esq. (gr. Mr. A. Daegleish), exhibited a mixed group of Cymbidiums, Calanthes and Cypripediums.

F. T. PAUL, Esq., F.R.C.S., showed Cypripedium Charlesworthii, Merle Dene variety, and C. Lawrebel, Paul's var.

GLASGOW AND WEST OF SCOTLAND.

THE opening meeting of the new season was held on Wednesday the 13th inst., when Professor J. Montagu F. Drummond, M.A., Glasgow University, delivered a lecture on "Mendel's Theory and its Practical Application." Mr. Charles Young, President, occupied the chair, and there was a large attendance of members, including several ladies.

After some preliminary remarks on the relations between pure science, and applied science in general, the lecturer gave a short account of the life and work of Gregor Mendel. The famous experiments with Peas were shown on the screen and described in detail and the importance of the central point of Mendel's theory purity of the reproductive cells (gametes) explained. Some of the later developments of Mendelism were afterwards considered, with special reference to their value to the practical plant-breeder, and it was pointed out that, while the employment of the Mendelian method in practice is subject to many restrictions, it nevertheless provides the breeder with a means of improving his stocks along pre-determined lines such as he never possessed before. Incidentally, Professor Drummond referred to the inheritance of perfume, quoting Sweet Peas as an illustration, and in the interesting discussion which followed mention was made of the correspondence in *The Gardeners' Chronicle* (vol. LXXV, 1924) on the loss of scent in Musk. One member suggested that fragrance was influenced by the temperature of the atmosphere.

The lecturer replied that while the atmosphere had something to do with the problem there was more in it than that, as the complaints about the loss of scent were not confined to Scotland Mr. John Cairns raised the question of colour variation in Ten-week Stocks, and Mr. Alexander McAlpine explained the difficulties he had experienced in applying Mendel's law to the breeding of Chrysanthemums. In reply to question, Professor Drummond expressed the opinion that although the Aster and the Chrysanthemum were members of the same family, they would not cross, as they were too distantly related.

ROYAL HORTICULTURAL

January 26.—A very bright exhibition was held at Vincent Square on this date, and there was a fairly good attendance. Spring flowers, Orchids, Roses, and Cyclamens all contributed to the display.

Orchid Committee.

Present: Mr. C. J. Lucas (in the Chair), Mr. Gurney Wilson (Hon. Sec.), Sir George Holford, Mr. F. J. Hanbury, Mr. H. T. Pitt, Mr. A. Dye, Mr. H. Alexander, Mr. Charles H. Curtis, Mr. J. E. Shill, Mr. J. C. Cowan, Mr. S. W. Flory, Mr. H. H. Smith, Mr. Stuart Low, and Mr. T. Armstrong.

Orchids were shown extensively on this occasion, but not so freely as at the previous meeting. Numerous interesting novelties were shown, and a Cultural Commendation was awarded to Messrs. Charlesworth and Co. for their splendid plant of Odontoglossum Dora, and a similar award to G. W. Bird, Esq. (gr. Mr. H. W. Reddens), Manor House, West Wickham, for a freely flowered specimen of Laelio-Cattleya Pioneer, Manor House var. Mr. W. Van de Weyer, Corf Castle, submitted a delightful little plant of Ophrys bombifera carrying two spikes of its bee-like flowers.

First Class Certificates.

Cypripedium Sir Trevor (*Ansuto var. Sallieri × aureum, × Christopher var. Grand Duke Nicholas*).—A superb Cypripedium and one of the very finest of the Chardwar hybrids. The flower is of perfect form, the big, rounded dorsal sepal being white with a pale green base. The petals and lip are light green, with a little yellow, a very pleasing shade. The Orchid Committee recommended the award of a Silver Lindley Medal in addition to the F.C.C. Shown by G. F. Moore, Esq. (gr. Mr. Page), Chardwar, Bourton-on-the-Water.

Miltonia Lycaena (*Princess Margaret × Lord Lambourne*).—This lovely hybrid has crimson petals shading to purple and with a white apex; the petals are white with rosy markings, and the big, rounded lip is white with a central and beautifully shaded area of bright rose, tinged with purple, and a pale cream mask with radiating rose lines. Shown by Messrs. Charlesworth and Co.

Odontioda Gwendoline, Stamperland var. (*Odm. eximium × Oda. Madeline*).—A showy and large-flowered hybrid, with rich reddish crimson sepals and petals, sparingly and daintily flecked with mauve. Lip cream-coloured, with red-crimson blotch and markings and yellow disc. Shown by R. Paterson, Esq., Stamperland, Cathcart, Glasgow.

Odontioda Colinge var. Rosemary (*Odm. crispum var. The Baron × Oda. Coronation*).—A very beautiful hybrid of rich and intense rose-red colouring. It has previously received an Award of Merit and now gained the higher award. Shown by J. J. Bolton, Esq. (gr. Mr. Lyne), Claygate Lodge, Claygate.

Awards of Merit.

Sophro-Laelio-Cattleya Vulcan var. Picotee (*L-C. Dominiana × S.-L.-C. Anzac*).—In this strong-growing hybrid the influence of Sophronitis grandiflora is not very evident, but the large flowers are very handsome. The broad petals are mauve with purple tinting and the petals are of rosier hue. The fine lip is deep Tyrian purple, with yellow in the throat and an edging of mauve. Shown by Messrs. Black and Flory.

Cypripedium Peerless (*Curtisii var. Sanderae × Holdenii*).—A chaste, albino hybrid of the C. Maudiae type. The white ground colour is finely veined with bright green and the lip is wholly of the latter colour. The foliage is dull light green with variegations of deeper green. Shown by Messrs. Armstrong and Brown.

Preliminary Commendation.

Odontoglossum Regium var. Britannia.—A handsome variety with light spottings on a deep chocolate coloured ground colour. Shown by Messrs. Charlesworth and Co.

Botanical Certificate.

Bulbophyllum Penicillium.—An interesting species with an elongated spike that rises a few inches and then bends in a horizontal direction. The spike is almost terete, with conspicuous bracts of a dull purplish colour as are the small flowers. The latter have a small, feathery lip which is curiously motile, moving in a jerking fashion with every movement of the air. Shown by J. Joicey, Esq., The Hill, Witley.

Groups.

Messrs. Charlesworth and Co.'s pleasing group contained splendid spikes of Odontoglossum Dora (eighty-nine flowers); O. Zula, deep hued and branching; O. crispum in fine form; O. Beau Brummel, very heavily branched, the old O. Wilckeanum, and other good things; there were also excellent examples of Miltonia Princess with crimson shading on the petals; M. Lycaena, with big, rounded flowers; Odontonia Nubia and O. Merops; and the big Cypripedium Senator var. Columbia; of botanical interest were Eria hyacinthoides, Cynorchis Lowii, Oncidium cheirophorum, and Coelogyne lentiginosa.

The contribution from Messrs. Stuart Low and Co. included graceful and bright hybrid Cymbidiums, Odontoglossums and Odontiodas, in addition to Cypripediums of the yellow insigne group, Bulbophyllum flavidum, Brassavola glauca, Platychinis Cobbiana, the rare Chysis aurea, Cypripedium Chamberlainianum and the sweetly-scented Odontoglossum aspidorhinum. Messrs. Sanders exhibited Odontioda Freda Sander of lovely rich rose colouring; Cymbidium Gottianum album, Odontioda Latona var. Enchantress, almost scarlet; Lycaste lanipes and a few other interesting plants.

Messrs. Cowan and Co. had a goodly group of well-grown plants which included Cypripedium J. M. Black, with finely marked flowers; C. Perseus (F.C.C. variety), C. Fantasia, C. Thompsoniana, the handsome Brasso-Cattleya British Queen which the firm seems to have in bloom always; Oncidium splendidum and Odontoglossum Theodora, a pretty O. Rossii cross.

Messrs. Armstrong and Brown showed two grand spikes of Laelio-Cattleya Schröderae, one with seven and the other with five beautiful blooms; their little group also included Cypripedium Peerless (Curtisii Sanderae × Holdensii), the brilliant little Laelia cinnabarina, L. harpophylla and Masdevallia tovarensis. Messrs. A. J. Keeling and Sons sent a few Cypripediums, including a pretty plant of C. Sunrise.

Some choice Odontoglossums were exhibited by Messrs. J. and A. McBean, these including O. crispum in variety, O. ardentissimum in variety, O. Theo, O. Pyraeus and O. Lilian. Cymbidium rosefieldense, Laelio-Cattleya Eunice alba, L-C. Sunbelle, of fine form, and the bright L.-C. Arcturus—an anceps cross—were also exhibited in this group.

Messrs. Black and Flory had some fine Cypripediums on view and a large plant of Sophro-Laelio-Cattleya Vulcan var. Picotee, with a mauve edging to the frilled purple lip. Mr. H. Dixon exhibited a few Orchids, notably Sophro-Laelio Marriottiana, Cypripedium quarryensis, and C. Winifred Hollington.

Floral Committee.

Present: Section A.—Mr. H. B. May (in the chair), Mr. Chas. E. Pearson, Mr. H. R. Darlington, Mr. D. B. Crane, Mr. J. T. West, Mr. D. Ingamells, Mr. A. Vasey, Mr. Jas. B. Riding, Mr. F. G. Cousins, Lady Beatrix Stanley, Mr. F. Streeter, Mr. Hugh Dickson, Mr. E. R. Janes, Mr. W. H. Page, Mr. J. M. Bridgeford, Mr. Donald Allen, Mrs. Helen Lindsay-Smith, Mrs. Ethel M. Wrightman, Mr. J. F. McLeod, Mr. T. Hay, Mr. G. W. Leak, Mr. W. B. Gingell and Mr. W. P. Thomson.

Section B.—Mr. Gerald Loder (in the chair). Mr. James Hudson, Mr. G. Reuthe, Mr. F. G. Preston, Mr. E. A. Bowles, Mr. L. R. Russell, Mr. A. Bedford, Mr. Clarence Elliott and Mr. R. W. Wallace.

Award of Merit.

Strelitzia kewensis.—This is a hybrid of S. Reginae and S. augusta which has been grown in the large Temperate House at Kew. In habit it partakes of S. augusta in being a tall plant nearly twenty feet in height and in having a branched stem. The flower spike is large, but the spathe is not so intensely purple as in S. augusta, while the flowers themselves are of pale primrose colour and lack the gorgeous colouring of S. Reginae. It would be a noble plant for the large stove house or warm conservatory. Shown by the Director, Royal Gardens, Kew.

Groups.

An admirable collection of forced bulbs in ornamental bowls was arranged by Messrs. Sutton and Sons. This occupied the whole of the tabling from the entrance to the Tea Annexe, and splendidly illustrated bulbs of high quality combined with first-class cultivation. The many Hyacinths, in distinct colours, demanded first attention. These were from prepared bulbs and largely of the graceful Cynthella type. The colours, particularly the blues and reds, were very clear, but the very best Hyacinths were the beautiful white spikes The many Tulips included both double and single varieties, which, as with the Hyacinths, were shown under colour names. Daffodils and Narcissi were of great merit and the beautifully arranged group also included Iris tingitana, particularly good Lily-of-the-Valley, and Freesias of considerable fragrance.

Large baskets of excellent plants of Iris tingitana, Iris reticulata, and Primula stellata in lovely shades of colour were staged by Messrs. Carter and Co., and these made an excellent display.

A full length tabling across the Hall was filled by Messrs. Blackmore and Langdon with a large collection of their admirable strain of Cyclamen latifolium varieties. These were set out in large baskets of distinct colours. Of the very many on view Salmon-Scarlet, Scarlet King, Giant White, Giant Crimson, and Grandiflora were especially admired, while many were fascinated by the frilled flowers of the variety Mrs. Buckston.

Carnations were shown in their usual high quality. Mr. C. Engelmann set up lovely vases of Mrs. Hamilton Fellowes, Rouge, Red Peerless, Topsy, Cupid, and many other valuable sorts. Messrs. Allwood Bros. showed vases of mixed varieties, and also Edward Allwood, Laddie, Maine Sunshine and Topsy. In a very good collection arranged by Messrs. Stuart Low and Co., White Pearl, Sheila Greer, Lady Hindlip and Philip Sassoon were prominent. At one end of the Carnations they staged Cyclamen latifolium varieties and Azaleas.

For so early in the year the forced Roses shown by Mr. Elisha J. Hicks were of great merit. The varieties were Madame Butterfly, Madame Edouard Herriott, Charles E. Shea, Mrs. H. Stevens, Coral Cluster and Double Orleans. Messrs. L. R. Russell, Ltd., staged a few plants of the blue-flowered Pycnostachys Dawei, with forced shrubs, amongst which the Wistaria and Azaleas were very well flowered.

Several plants of the brilliant Hippeastrum aulicum were shown by Messrs. R. Gill and Son with an extensive collection of their Poppy Anemones. They also exhibited trusses of Rhododendron Nobleanum, R. Cornubia and R. argentea.

A very attractive sandstone rock garden was built by Messrs. W. Cutbush and Son and planted with Rhododendron praecox, Hamamelis arborea, Iris reticulata, Crocus Sieberi, Saxifrages and other plants. The Messrs. Hopkins had a bright little rock garden and

Messrs. Skelton and Kirby planted their rock garden with Heaths, small Conifers and other shrubs.

With a background of profusely flowered Forsythias, chiefly F. intermedia and F. i. spectabilis, Messrs. Barr and Sons displayed splendid pans of Crocus Sieberi, Iris reticulata, Primula denticulata superba and the dainty little Narcissus minimum. Messrs. J. Cheal and Sons showed a few pans of Iris, Crocus, Adonis amurensis and Snowdrops. Saxifrages in small pots and Primula capitata were contributed by Mr. G. G. Whitelegg, while Mr. F. G. Wood staged a pleasant rock garden set out with various Primulas, Christmas Roses, Crocuses and dwarf Conifers.

Saxifraga Burseriana varieties, particularly dentata and crenata, were well displayed by Messrs. R. Tucker and Sons, who also showed drifts of S. Kellererii with various Primulas and hardy Cyclamens. Messrs. Waterer, Sons and Crisp staged a good batch of Pieris (Andromeda) floribunda, Rhododendron Nobleanum, Forsythia spectabilis, Crocus Cloth of Gold, Iris reticulata and Iris histrioides. Mr. J. Klinkert again exhibited good topiary specimens.

A large collection of their excellent photographs was exhibited by Messrs. Reginald Malby and Son, who also showed enlargements and several series of most fascinating colour slides.

Messrs. Wm. Wood and Son again showed an extensive selection of garden tools and sundries, and in a corner space there was set out one of Walker's Fruit Tree Protectors.

Fruit and Vegetable Committee.

Present: Mr. C. G. A. Nix (Chairman), Mr. W. Poupart, Mr. J. Cheal Mr. P. C. M. Veitch, M. Geo. F. Tinley, Mr. A. Metcalfe, Mr. H. Markham, Mr. W. Giles, Mr. A. E. Newby, Mr. A. Bullock, Mr. P. D. Tuckett, Mr. E. Beckett, Mr. H. Prince, Mr. A. C. Smith, Mr. W. H. Divers, Mr. E. A. Bunyard and Mr. A. N. Rawes.

There were only two exhibits in this section; the largest was a collection of forty-four varieties of Apples shown by Messrs. J. Cheal and Sons, Crawley. Most of the fruits were as sound and plump as when gathered from the trees; they were exceptionally clean skinned and the coloured varieties carried high tinting. The following is a selection of the varieties: Bowhill Pippin, Ontario, Crawley Beauty, Wagener, Hector MacDonald, Beauty of Kent, Sandringham, Arthur Turner, Buxted Favourite, Hormead Pearman, Prince Albert and Encore.

Messrs. G. Bunyard and Co., Ltd., Maidstone, exhibited a collection of Apples representing some of the best sorts in season. They showed the following fourteen varieties: Cox's Orange Pippin, Christmas Pearmain, Heusgen's Golden Reinette, Jonathan, High Green Blenheim, Lord Hindlip, Claygate Pearmain, Rival, Blenheim Pippin, Adams's Pearmain, Baumann's Red Winter Reinette, Ballinora, Belle de Boskoop and Norman's Pippin.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

Thursday, January 7.—Committee present: A. Hanmer, Esq. (in the chair), Messrs. R. Ashworth, C. Branch, A. Burns, A. Coningsby, J. Cypher, J. Evans, W. Giles, A. Keeling, E. W. Thompson and H. Arthur (secretary).

First-Class Certificates.

Cypripedium Mildred var. Margaret (Christopher Grand Duke Nicholas × bourtonense).—A fine flower with a broad, round, white dorsal segment, with deep rose-coloured markings; the petals are broad and the lip of even contour. From J. B. Adamson, Esq.

Cypripedium Eley, John Cypher's variety (parentage unknown).—A magnificent flower; the dorsal sepal is four inches across, white with a green base delicately spotted. The broad, wavy petals measure two inches in width; they are bronze-green, veined and spotted. From S. Gratrix, Esq.

Odontoglossum Pegasus var. Stanley Baldwin.—A well-shaped flower of deep maroon colour, paler at the tips; the broad, flat lip is tipped with white. From Mr. J. Evans.

Awards of Merit.

Cypripedium Woodhouse (villosum Beeckmanii × Alcibiades illustris) and *Odontoglossum crispum rotundum.* From Mrs. P. Smith.

Odontoglossum crispum Diadem and *Cypripedium Leeanum Adamson's variety (Leeanum Clinkaberryanum × bourtonense).* From J. B. Adamson, Esq.

Cypripedium Cappa Magna, West Point Variety (Cardinal Mercier × Nubian). From S. Gratrix, Esq.

Odontioda Priscilla var. Purple Shade.—From Capt. W. Horridge.

Cypripedium Elise, Wallhouse variety.—From James Wood, Esq.

Groups.

J. B. Adamson, Esq., Blackpool (gr. Mr. R. Taylor), staged a group to which a Gold Medal was awarded.

A Gold Medal was also awarded to S. Gratrix, Esq., West Point (gr. Mr. C. Branch), for a group of Cypripediums.

Mrs. Bruce and Miss Wrigley, Bury (gr. Mr. A. Burns), were awarded a Large Silver-gilt Medal for their collection of Orchids.

A Large Silver Medal was awarded to Messrs. J. Cypher and Sons, Cheltenham, for their exhibit.

HORTICULTURAL ORGANISERS' CONFERENCE.

A well-attended conference was held at the Midland Agricultural and Dairy College, recently, when Dr. Hatton, Director of the East Malling Research Station, opened a discussion on "Some Aspects of Black Currant Growing." Dr. Hatton stated that some years ago the East Malling Research Station obtained specimens of all so-called varieties of Black Currants available, and after careful study of them, they came to the conclusion that the naming of Black Currants was hopelessly involved, and that in reality there are only four distinct types, which fall in two main groups, as follow:—(1) Red Budded types: (*a*) French Group; (*b*) Boskoop Giant. (2) White Budded types: (*a*) Baldwin Group with long, ragged and protruding buds; (*b*) Goliath Group, with small, often crowded, adpressed buds.

He stated that it was only recently that any crossing had been done, and it was found that Black Currants breed true to type; the variety Baldwin tends to sport. He gave results of cropping trials carried out under uniform conditions for four years; the varieties were planted 1,200 bushes to the acre, as yearlings, and gave an average yield for the four years as follows:—Baldwin, 32 cwts.; Goliath, 25 cwts.; Boskoop Giant, 25 cwts.; Seabrook's Black, 23 cwts.; French (Black), 21 cwts.

They found that the variety Baldwin cropped earlier after planting than the other varieties, and in addition to the increased yield made double the price of Boskoop Giant, which clashes with the continental supply. Individual bush weights of fruit varied from fourteen ounces to thirty-five ounces, which indicates the necessity in carrying out any trials, of having a large number of bushes. He next dealt with some of the causes of non-cropping. He considered that some varieties cropped badly owing to the difficulty of pollination; in Baldwin, pollination is easy as the stigma and the anthers are of equal length, whereas in some others, the length varies very much. Dealing with the question of reversion, he mentioned that it could now be definitely stated that it is transmittable by grafting or inarching, and it has been suggested that the pruning knife may convey the complaint; proof of this, however is lacking. Reversion is clearly indicated about the middle period of growth. Bushes may look perfectly healthy during the summer, but still show distinct signs of reversion the following spring. Cutting out infected branches is considered ineffective. He pointed out that besides true reversion artificial reversion may occur if the terminal bud is removed and the axillary buds grow out prematurely; in such cases the plant later will grow naturally. Dealing with big bud at East Malling, they found that the most successful treatment was lime-sulphur wash (one in ten) which should be applied when the leaves are small, before the blossoms open; untreated bushes, after four years, had 6,000 big buds per 100 bushes, whereas lime-sulphur treated bushes had only 280 big buds per 100 bushes.

They found that reversion is increasing greatly in orchards where there is no treatment, but where growers are in the habit of spraying with lime-sulphur to destroy the big bud mite, it is found to have a beneficial effect in regard to both troubles, as the mite of big bud is evidently a carrier of reversion.

Obituary.

Frederick Bedford.—The very old friend with whom the writer had been more or less in touch with since first calling on him at Straffan Gardens, Co. Kildare, in 1878, passed peacefully away at his residence, the Bungalow, Leixlip, Co. Kildare, on the 19th inst. During his régime of forty years at Straffan Gardens they became noted, not only in our Irish gardening world but far beyond, for his skilled work as a plantsman and fruit grower. Retiring ten years ago to the quaint, old-fashioned house, perched high on the river's "brim" (the Liffey), he converted what was a wilderness into a charming little garden, thoroughly enjoying his labours of love, until a year since when an attack of illness rather severely handicapped him, physically, but not mentally, for his heart was in it right up to the end, the day before he died being spent in relabelling his beloved Roses. Mr. Bedford's first work in Ireland was at Kenmare House, Killarney, from whence, after a few years, he went to Straffan, and there got in touch with his friend the late Mr. F. W. Burbidge, then appointed as Curator to Trinity College Botanic Gardens, Dublin, who very frequently visited Straffan, and there are few more pleasant places, so quiet, restful and satisfying. Many happy memories by the writer go with him who was laid to rest in Straffan churchyard on the 22nd inst. with those he had loved long since and lost awhile, and was followed to the grave by his widow, daughter and three sons—the eldest of whom succeeded Mr. Hudson as gardener to Mr. Lionel de Rothschild, at Gunnersbury—and many friends. *E. K. Dublin.*

Edward Bull.—We learn with deep regret of the death of Mr. Edward Bull, proprietor of Bull's Food for Plants, and younger son of the late Mr. William Bull of Chelsea. Mr. E. Bull died on the 24th inst. at his residence, 41, Brunswick Terrace, Hove.

Hermann Fischer.—The death is recorded in our contemporary, *Möllers Deutsche Gartner-Zeitung*, of Herr Hermann Fischer, partner in the famous Stuttgart florist's firm of Julius Fischer, who passed away on December 18, 1925, aged 64. He was a splendid gardener, and the nurseries which supplied the shop were noted for the fine cultivation. Herr Fischer was very popular in Stuttgart, and took a very active part in founding and maintaining the local horticultural society. The business will be carried on as before by his brother, who has for some time been a partner in the business.

Rudolf Schlechter.—We greatly regret to learn of the death, on the 15th of November last, of Dr. Rudolf Schlechter, the celebrated German botanist and Orchidophile. Born in 1872, Dr. Schlechter showed early a great love of nature and of botany, and was sent out as a member of an expedition which visited West Africa in 1899 and 1900 to report upon the possibilities of developing Rubber cultivation in the German colonies there. In these and other journeys he found time for exhaustive records of the flora, and especially of the native Orchids, his last journey, still under the auspices of the Colonial Rubber Committee, to Malay and New Guinea, being in 1906-9. On returning home, he became assistant, and finally curator, at the Dahlem Botanic Garden. He wrote a number of very important works, chiefly of a systematic nature, on the subject of Orchids, his descriptions of new sorts alone running to over a thousand; his work *Die Orchideen*, was published in 1915, and contains over 830 pages. Schlechter was a painstaking observer and systematist of whom there are but too few, and will be sadly missed in scientific circles. It is probable that his knowledge of the flora of the eastern hemisphere was unsurpassed by that of any other botanist.

ANSWERS TO CORRESPONDENTS.

Acacia Baileyana. *G. J.* Acacia Baileyana is not very suitable for pot cultivation as it is apt to become bare and leggy and loses much of its older foliage. Your treatment is quite correct, but this species is seen at its best when planted out in a bed or border and trained up a pillar or rafter, cutting the branches hard back after it has finished flowering. When planted out it requires a run of at least ten to twenty feet, and on this account is not suited to a small house. Some of the best species for growing in pots are A. Riceana, A. pulchella, A. platyptera, A. armata, A. Drummondii, A. hastulata, A. longifolia var. mucronata and A. juniperina. You might try your plant in a larger pot, cutting back the branches after it has finished flowering, and repotting it when it is starting into fresh growth.

Chrysanthemums for December. *J. P. O'Dwyer.* Varieties to bloom in December and January are W. H. Lincoln, Winter Cheer, Tuxedo, Niveus, The Favourite, Pink Favourite, Miss Wilcox, Madame R. Oberthur, Heston White, Framfield Pink, Golden Butterfly, Dr. Enguehard, December Pink, December Gold, December Bronze, Cream Favourite, Baldock's Crimson, Burton Avalanche, (incurving form), Nagoya, Christmas White, Balcombe Beauty, Terra Cotta, Ruby Jones, and Pride of Ryecroft. The above include all the colours you mention. In case you have difficulty in getting them all, a few additional ones are Winter Glow, Winter Gem, White Queen of the Exe, Salmon Cheer, Western King, Mayfield Sunrise, Madame E. Roger (green), and Mrs. J. Thompson.

Edging for Path. *O. D.* Good evergreen edgings for paths are Armeria maritima (Thrift), a single or double line of crowns of London Pride, and Cerastium tomentosum. The last may be prevented from flowering, if you wish, by clipping the stems short in April with the garden shears. The edge may also be cut straight by laying the garden line and using the edging iron. An uncommon edging may be had by planting bulbs of Zephyranthes candida in autumn. It flowers freely in early autumn, the blooms being white.

Flowering Plants for a North Wall. *J. P.* The most suitable flowering shrubs to train against a north wall are the white-flowered Jasminum officinale, the yellow J. nudiflorum, and the double yellow Kerria japonica flore pleno. Crataegus Pyracantha Lalandei is the best evergreen for a north wall, but it does not fruit well there, though it grows well. Roses for that aspect are Felicité-et-Perpétue, Gloire de Dijon, Bouquet d'Or, and Alberic Barbier.

Paint for Vine Rods.—*J. D.* It was an old custom to paint vine rods with something after they had been washed or cleansed; but the best growers came to see that the paint was of doubtful value, and even made hiding places for insects during summer as the paint began to flake off. We have known vine rods to be painted over with tar, but those vines had to be replaced by young ones a few years afterwards. The common and less drastic paint of olden times was made by stirring strong clay or brick earth into a pail of water till it acquired the consistency of paint. Some lime and soot were also stirred into the mixture with a handful or two of flowers of sulphur. Two or more ounces of Gishurst Compound or soft soap were dissolved in boiling water, added to the mixture and stirred. A better plan is to rely upon the washing, and in summer when tying down the vines, thinning the berries, etc., to have handy a bottle of methylated spirit and a brush to treat each mealy bug with the spirit. The pest may be exterminated by this method if a close watch is kept on the vines for a summer or two.

Vines and Mealy Bug. *J. D.* The vines should first be pruned and the prunings burnt. Next, wash thoroughly the interior of the glass and woodwork with strong, soapy water. The back wall of the vinery should then be whitewashed or limewashed. In the latter case, the wash should be made with quick lime (builder's lime), which is stirred into a pail of water till it becomes thick enough. The loose bark of the vine rods should be rubbed off by grasping them tightly in the palm of the hand, and working them round, first one way and then the other. Next, dissolve three or four ounces of Gishurst Compound or soft soap to the gallon of boiling water. If the soap is used, the specific is improved by adding a handful of flowers of sulphur to the gallon. With a half-worn or stiff painter's brush, rub the solution well into the bark of the rods, especially about the spurs, taking care not to injure the buds.

Wash for Fruit Trees.—*P. D.* Common salt at the rate of half-a-pound to the gallon of water has been used for destroying moss and lichens on fruit trees, by spraying them with the solution in January or February. Milk of lime has also been used for the purpose. Quick-lime is first slaked with a little water by laying it in a heap on some boards, or any hard surface. Any lumps remaining may be gathered in a heap and wetted again. Stir the powdered lime into a pail of water till it forms a thick cream, which should be filtered into another vessel, and then applied to the trees with a syringe. The caustic spray is a very efficient one, however, and if you select a still day and walk on the side of the trees from which the wind is blowing, it should be possible to carry out the spraying without injury to the operator.

Weedkillers and Grass. *J. P. O'D.* Weeds in the pavements of courtyards may be destroyed by dusting them well with common or table salt in dry weather, from March to May inclusive. The point is to select a dry period, so that the salt may not be diluted and carried away by rain before it has had time to act. Agricultural salt would be cheaper, but would require to be pounded up rather finely before use. Finely powdered sulphate of ammonia would answer the same purpose.

Pigeons and Spring Cabbage. *J.* We have only been troubled with wood pigeons in one garden, and had recourse to shooting them. They were troublesome to Gooseberries, Cauliflowers, and Peas, in the quiet and less frequented parts of a large garden. The Peas were staked and that protected them considerably. The pigeons were very wild, so the best marksman went round the outside of the garden walls while another proceeded to rouse the pigeons from inside. At the present time, as there are less facilities for shooting, it would be well to dissolve some soft soap in boiling water and stir some soot and lime in to make it distasteful to the pigeons. Young Cabbages, Broccoli, etc., could be sprayed with the mixture. This should not be applied to hearted Cabbages or Broccoli coming into use, but we have never known pigeons to attack such plants in summer, except when the latter were quite young.

Communications Received.—H. L. R.—H. C., France.—S. J. M.—A. T. H.—H M. T. C.—A. B. S.—F. S.—G. W. R.—J. C.—J. P.—J. E. L.—C. H.—R. G.—B. F. D.—A. B. W.—G. K. P.

NEW HORTICULTURAL INVENTIONS.

These particulars of New Patents of interest to readers have been selected from the Official Journal of Patents, and are published by special permission of the Controller of His Majesty's Stationery Office.

Latest Patent Applications.

31,263.—Blackmore, W. H.—Garden shears. December 11..

31,181.—Pringle, A.—Grass-clipping machines. December 10.

30,313.—Kilburne, W. R.—Beehives. December 1.

29,713.—Watson and Sons, Ltd., H.—Electrically driven lawn-mowers. November 24.

29,090.—Mikkelsen, P. C.—Lawn-mowers. November 18.

Specifications Published.

243,159.—Sedgwick, A. S. E.—Device for spraying insecticides and like purposes.

242,871.—Strain, A. J. and Ritchie, Hart and Co., Ltd.—Horticultural and agricultural implements.

242,367.—Fletcher, A. J. and Bird, C.—Apparatus for spraying hops, fruit trees, and the like.

242,371. Swingler, E.—Lawn (or the like) rollers.

242,360.—Healy, J.—Garden shears.

Printed copies of the full published specifications may be obtained from the Patent Office, 25, Southampton Buildings, W.C.2., at the uniform price of 1/- each.

Abstract Published.

New Lawn Mower. *Patent No.* 240,915.

A new grass cutter having oscillating cutting blades working similar to a reaping machine, has been invented by Mr. H. A. T. Stoakes, of Brendon Cottage, Pinley, Claverdon, near Warwick. The oscillating blades co-act with a fixed horizontal blade having a front cutting edge. The blades are double-acting and are curved so as to have a cutting action like shears and scythes: a scraper keeps clear the gap between the rollers. Rotary vanes are provided to sweep the cut grass into a collecting box. The machine is provided with propelling or guiding handles and provision is made for the attachment of a driving motor.

THE LATEST TRADE MARKS.

This list of Trade marks of interest to readers has been selected from the *Official Trade Marks Journal* and is published by permission of the Controller of His Majesty's Stationery Office.

460,583.—Seal device bearing monogram of of letters P Q and headed with the words PEDIGREE--QUALITY, for seeds for agricultural and horticultural purposes.—Sutton & Sons, 10, Market Place, Reading, Berkshire. November 25, 1925.

LABRISOL.

463,243.—Chemical substances used for agricultural and horticultural purposes.—Brisbane Laboratories, Ltd., 15a, Brisbane Street, Camberwell Green, London, S.E. 5. December 2, 1925.

APPETONIC.

463,319.—Chemical substances used for agricultural and horticultural purposes.—W. G. Kelynack, 5, Station Road, Heathfield, Sussex. November 25, 1925.

Readers requiring information and advice respecting Patents, Trade Marks or Designs should apply to Messrs. Rayner and Co., Patent Agents, of 5, Chancery Lane, London, W.C. 2, who will give free advice to readers mentioning this paper.

MARKETS.

COVENT GARDEN, Tuesday January 26th, 1926.

Plants in Pots, etc.; Average Wholesale Prices.

(All 48's except where otherwise stated).

	s. d. s. d.
Adiantum cuneatum per doz. ...	10 0-12 0
—elegans ...	10 0-12 0
Aralia Sieboldii	9 0-10 0
Araucarias, per doz.	30 0-42 0
Asparagus plumosus	12 0-18 0
—Sprengeri ...	12 0-18 0
Aspidistra, green	36 0-60 0
Asplenium, per doz.	12 0-18 0
—32's	24 0-30 0
—nidus	12 0-15 0
Azaleas, 48's, each	4 0—6 0
Cacti, per tray —12's, 15's ...	5 0- 7 0
Chrysanthemums, pot grown, in variety, 48's, per doz.	15 0-24 0
Cinerarias, 48's, per doz. ...	18 0-21 9
Crotons, per doz.	30 9-45 0
Cyclamens, 48's in variety, per doz.	24 0-30 0
Cyrtomium ...	10 0-25 0
Daffodils, 48's, per doz. ...	18 0 21 0
Erica gracilis, 48's per doz.	24 0-30 0
—nivalis, 48's, per doz. ...	24 0-36 0
above varieties in 60's, per doz.	12 0-15 0
— in Thumbs, per doz. ...	9 0-10 0
Genistas, 48's, per doz. ...	24 0-27 0
Hyacinths, large white, 48's, per doz.	21 0 24 0
Marguerites, 48's per doz. ...	18 0-21 0
Nephrolepis in variety ...	12 0-18 0
—32's	24 0-36 0
Palms, Kentia	30 0-48 0
—60's	15 0-18 0
Pteris, in variety	10 0-15 0
—large, 60's ...	5 0- 6 0
—small	4 0- 5 0
—72's per tray of 15's	2 6- 3 0

REMARKS. Daffodils have been fairly plentiful during the past week; in addition to larger supplies from home growers, small consignments have been received from Guernsey. Narcissus Grand Primo and N. Soliel d'Or are to be had in excellent condition. The Tulips are excellent, including a good selection of single varieties, such as La Reine, Yellow Prince, Thomas Moore, Camoise Brilliant, Gris de Lin, Wm. Copland and Rosina. The double varieties, Couronne d'Or, Murillo and Double White are also fine; large supplies of these blooms are also being received from Holland. More Snowdrops are available, and the first consignment of Primroses has been on sale. Lilium longiflorum, L. speciosum (lancifolium) rubrum and Richardias (Arum) are becoming more plentiful again: the severe weather checked the supply of Arums during last week, and the small consignments were sold very quickly. Camellias, Freesias, Hyacinths and single Violet Princess of Wales are arriving in large quantities. Supplies from the south of France have been checked by the severe weather. Anemones, Marguerites, Ranunculus and Violets have been most affected but they are gradually reappearing, and prices are more normal. Flowering plants are receiving most attention from buyers. These include Daffodils, Cinerarias, Hyacinths, Genistas, Azaleas, Cyclamens, a few Ericas and Chrysanthemums. A few Paul Crampel and West Brighton Gem Pelargoniums in forty-eight pots were on sale last week. Ferns and Palms are somewhat limited in quantity as growers are sending small supplies.

Vegetables: Average Wholesale Prices.

	s. d. s. d.
Artichokes, green per doz. ...	2 0--3 0
Asparagus—	
—English ...	5 0--7 0
—Paris Green...	7 6--9 0
—Lauris ...	12 0-20 0
—Sprue ...	1 3--1 6
Beans—	
—Madeira, per basket	4 0--7 0
—Guernsey & Worthing forced—	
—Finest... ...	5 0—6 0
—Ord.	3 0—4 0
Beets, per cwt.	6 0--8 0
Cabbage, per tally	10 0-15 0
Celery, per doz. fans	36 0-48 0
Cauliflowers—	
—St. Malo, per crate	6 0-10 0
Carrots, washed	10 0-12 0
Chicory, Belgian, per lb	0 5--0 6
Cucumbers, per doz.	12 0-30 0
Endive, per doz.	2 0--3 0
Horseradish, per bundle ...	1 3--2 0
Lettuce, round, per crate ...	5 0--7 0
—French Cos, per doz. ...	5 0--6 0
Mint, forced ...	6 0-10 0
Mushrooms,	
—French ...	1 0--2 0
—cups	2 6--3 0
—Broilers ...	1 0--2 0
Onions—	
—Dutch	7 6--8 6
—English, per cwt.	8 0--9 0
—Valencia ...	8 6-11 0
Parsnips, per cwt.	7 0--9 0
Peas, French crate	3 0--4 0
Potatos—	
—King Edward, per cwt. ...	7 0--8 6
—others	4 6--6 0
New Potatos—	
—Algerian per lb.	0 1½-0 2½
—Azores, per case	15 0-20 0
—Canary Island	10 0-18 0
—Guernsey ...	0 10--1 0
Rhubarb, forced per doz. bundles	1 6--2 6
Seakale, per punnet ...	1 9--2 6
Sprouts, per ½ bag	6 0-10 0
Savoys, per doz.	2 0--3 0
Tomatos, Canary Islands Best...	18 0-30 0
Turnips, per cwt.	6 0--8 0
—New, per bun.	1 3--1 6

REMARKS. Business has been fairly active for the time of year, and a steady volume of produce has been handled. Shipments of fruits from South Africa are more numerous each succeeding week, and consist mainly of Peaches, Nectarines, Pears and Plums. The demand for these fruits is moderately good. The enquiry for Apples is, on the whole, quiet. The comparatively few first-grade English Apples are selling better than imported Apples. Hothouse Grapes are meeting a good demand; both English and Belgian Grapes are not plentiful. Some good Grape Fruits are available and seem to be in better request, with the result that quotations are a shade firmer. The Banana trade remains unchanged, the prices showing little or no fluctuation. Oranges are a quiet market with no alteration in prices. French Beans are scarce and costly. Asparagus has recovered from its recent period of slumpy prices, and both English forced and imported Asparagus are a much better trade. New Potatos are meeting a fair demand, and new Potatos from the Azores are also a little more popular, but those from the Canary Islands and Algeria have shown no such relative improvement. French Beans from Madeira reached the market in variable condition, but they sold moderately well. The growers in the Worthing district are sending a larger number of Cucumbers, and the recent high prices have receded somewhat. Cauliflowers, mainly from France and Cornwall have sold well and should continue to be in demand at prices satisfactory to the producers. Lettuces and other salads from France are selling at comparatively high prices, in spite of the fact that quantities seem larger than usual. Mushrooms are meeting a good market, and although fancy prices are not being realised the demand is steady and regular. Paris has recommenced sending and this may have the effect of slightly easing the market. Tomatos from the Canary Islands are on the short side and their prices have risen. The trade in forced Rhubarb has been very poor at anything like good prices. Green vegetables continue to sell well, Brussels Sprouts in particular. The trade in old Potatos remains stable, with good sorts in demand.

GLASGOW.

There were fewer cut flowers in the market during the past week, and as the daily supplies approximated to the demand, prices remained steady with a firming tendency in places. Tulips dominated the sales, and the wider range of varieties included several Darwins. Bartagon was worth from 2/3 to 2/6 per bunch of 6; William Pitt, 2/- to 2/6; W. Copland, 1/- to 1/5; Rosina and Rose Tendre, 1/3 to 1/8; Couronne d'or, 1/2 to 1/8; seconds realised 1/-; Flamingo and Murillo, 1/2 to 1/6; Prince of Austria, 1/- to 1/4; Vermilion Brilliant, 1/- to 1/3; Thomas Moore, 9d. to 1/-; and La Reine, 8d. to 1/-. The few Chrysanthemums offered consisted of Western King and Heston White, the former making 1/- to 1/6, and the latter 6d. to 10d. per bunch. Narcissus made 18/- to 20/- per pad; Lilac, 5/- to 7/- per doz; Lily-of-the-Valley was cheaper at 1/3 to 1/6 per bunch; White Hyacinths, 7d. to 8d.; specials, 1/- to 1/3; blue and pink, 10d. to 1/-; Carnations were dearer at 6/- to 8/- per doz. There was a glut of Mimosa which realised 3/- to 5/- per pad until Friday, when the price recovered to 6/- and 8/-. Daffodils sold at 8d. to 1/- for Scotch Golden Spur; Spalding-grown blooms, 10d. to 1/1; and Ornatus, 10d. to 1/-.

In the fruit market a good business was done in bitter Oranges at 13/3 for Seville brands, and 10/6 for Palermo. Jaffa Oranges advanced 1/6 per case to 13/6, but Valencia fruit continued in favour of buyers. Counts of 300, 360, and 504 ranged from 6/- to 10/6; 420 and 714, 10/- to 15/-; and extra large, 16/- to 20/-. Mandarins made 9d. to 1/- per tray. Palermo Lemons, 12/- to 13/6. Grape Fruit, 22/- to 30/-. American Apples were in steady demand at the following quotations: British Columbia — Delicious 13/6 to 16/6 per case; Spitzbergen, 11/6 to 13/-; Jonathan, 10/- to 12/-; Grime's Golden, 9/- to 11/6; Oregon — Newtowns, 16/- to 19/-; Spitzbergen, 12/6 to 14/-; Canadian Baldwin, 22/- to 25/- per barrel; Greenings, 28/- to 32/-; Virginia York Imperial, 32/- to 34/-; Gano, 16/- to 19/-; Ben Davis, 12/6 to 15/-; New York State Greenings, 26/- to 30/-; Ben Davis, 12/- to 15/-. Nova Scotia Baldwin, 10/- to 15/- and Golden Russet, 16/- to 32/-; Winter Nelis Pears, Californian, 22/- to 25/- per case; Oregon, 14/- to 18/-; Washington, 8/- to 12/-. South African Peaches, 7/- to 8/- per tray; Clapp's Favourite Pears and Plums, 6/- to 7/-. Rhubarb made 40/- to 42/- per cwt.

Case Onions were the feature of the vegetable section, 5's being worth 11/- per case, and 4's, 8/6. Seakale fluctuated between 2/6 and 2/9; Spruce, 1/6; Endive, 3/- to 4/-; Lettuce, 1/3 to 1/6; French out-door Lettuces, 2/6 to 3/-; French Beans, 6/- to 7/-; Artichokes, 3/-; Flagelettes, 1/6, and Teneriffe Tomatos, 24/- to 30/-.

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GARDENING APPOINTMENT.

Mr. W. Stephenson, for twenty-one years Gardener to the late SIR EDWARD PEARSON, Brickendonbury, Hertford, as Gardener to SIR WALTER LAWRENCE, Hyde Hall Garden, Sawbridgeworth, Hertfordshire. (Thanks for 2/- for R.G.O.F. Box. EDS.).

SOME INTERESTING POTATO FACTS.

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THE
Gardeners' Chronicle

No. 2041.—*SATURDAY, FEBRUARY* 6, 1926.

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Average Mean Temperature for the ensuing week deduced from observations during the last fifty years at Greenwich, 39.0.

Actual Temperature –
The Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, February 3, 10 a.m. Bar. 29.4. Temp. 48°. Weather, Dull.

The Royal Horticultural Society.

The Annual Report of the Council, summarising the activities of the Royal Horticultural Society during the past year, and setting forth the principal matters which the Council proposes to deal with in the present year, is before us, and will be presented to the Fellows at the Annual Meeting on Tuesday next at 3.30 p.m. in the Lecture Room. The Report makes the pleasing announcement that since the last annual general meeting the number of Fellows and Associates has increased by over one thousand. On November 18th, 1925, the membership was 21,878, which is, we believe, the largest in the history of the Society. The total income for the year amounted to £51,896 2s. 6d., and a balance of £27,517 19s. 11d. is shown on the general account; from this balance, however, has to be deducted the expenses of Wisley, amounting to nearly £10,000, and a sum of £16,000 placed to the reserve fund. Finally the balance sheet shows a balance carried forward of £1,105 9s. 7d. The Council very truly states that the Society has out-grown its home as a natural consequence of its continued prosperity; when the hall in Vincent Square was opened in 1904 the membership was only 8,360. The new hall, about which there has been so much speculation, is to be erected in Elverton Street, Westminster, almost adjoining the present building. The Council has obtained a lease of the site for a term of 999 years at a ground rental of £1,300, and the area available will accommodate an exhibition hall nearly twice as large as the existing one. During the present year the Council proposes to enter into contracts for the excavation of the site and the erection of the building. So far no estimate has been obtained as to its cost, but a design prepared by Messrs. Easton and Robertson, of 36, Bedford Square, W.C., has been accepted, subject to certain modifications. Mr. J. Murray Easton, A.R.I.B.A., a member of the firm of Messrs. Easton and Robertson, has arranged to deliver a lecture on the proposed new building on Wednesday, April 7, at which Mr. C. T. Musgrave, the Chairman of the Housing Committee, will preside, when we shall, doubtless, know some of the details. No further information on the new hall is given in the Report, but several particulars were published recently in one of the daily papers, although the information was not sent to the horticultural press, and, apparently, is not at present forthcoming for the Fellows. A full programme of shows was held during 1925, the least successful being the special Amateurs' Show, which is somewhat surprising and is excused on the grounds that hot, dry weather prevailed immediately preceding the show, and many who had entered found themselves unable to exhibit. The Society proposes to hold a similar show for amateurs on July 22, and it is to be hoped that this will be advertised better than the last. The special Vegetable Show held in conjunction with the fortnightly exhibition on September 8th last, was also not so good as usual, but in this connection we think some of the failure may be attributed to the inadequate prizes offered in the various classes, compared with the big provincial shows; exhibiting is now a very expensive matter, and unless rewards commensurate with the trouble and outlay are offered the response will always be poor. No reference is made to the shows of the special floricultural societies which were held in the Horticultural Hall last year, but these, even more than the Society's own exhibitions, proved the inadequacy of the building for the purposes of holding important horticultural shows in the metropolis. Although the proposed new building will, as stated, have double the floor space of the old hall, the exhibitions of such Societies as the National Rose Society, the National Chrysanthemum Society and the National Sweet Pea Society, will, judging by those of recent years, be of sufficient size to fill all the available space. The R.H.S. has in these separate organisations valuable allies in the advancement of horticulture, and as Fellows are admitted free to the exhibitions provided by these several societies, some recognition of the Council's indebtedness would not have been out of place, especially as the Council receives payment for the use of the hall on those occasions. The reference to Wisley states that the Gardens are visited by Fellows in increasing numbers every year. The Sunday opening has not proved such a success as many expected, but the experiment will be repeated this year, when the Gardens will be open each Sunday from May 2 to October 10, between the hours of 2 p.m. and 6 p.m. The appointment of Mr. R. Findlay as Keeper of the Wisley Gardens is a step in the right direction, and it is hoped to appoint a principal officer as Keeper of the Laboratory in the near future. Further land has been prepared in Seven Acres and planted with shrubs and flowering trees, and amongst other alterations and improvements the collection of Rose species has been augmented; parts of the garden have been replanted, three acres to form a shelter belt along the whole west end of the garden having been purchased, fenced, and for the most part planted with trees. Amongst the experimental work carried out at Wisley the experiments on green manuring have been continued by Dr. Darbishire, who has also made investigations into the composition of varieties of Potatos and, in connection with Mr. Buxton, in the colours of flowers, especially Primroses. The experiments of pollinating in orchards and certain aspects of summer pruning have been continued by Mr. Rawes, while Mr. Dowson has in hand investigations on the Stem Rot of Carnations; sclerotial diseases of bulbs, of Antirrhinums, etc., the Die-back disease of Roses and Rubi, and a Core-rot disease of Apples. The Society has established four scholarships for young men from private gardens and nurseries, carrying a maintenance allowance of 35s. a week and tenable at the Society gardens. Two of these scholarships are available for 1926. An important appointment has been made during the past year, that of Mr. Walter M. Epps, F.R.I.B.A., as Surveyor to the Society, who will regularly inspect all buildings in which the Society has an interest and supervise all repairs. Amongst the more interesting of the awards made last year are those of the Veitch Memorial Trust Gold Medal to Mr. E. H. Wilson, V.M.H., for his introductions to gardens and his books; and to Mr. W. P. Thomson, for his journalistic work in connection with horticulture. Mr. Thomson has been a prominent figure in horticulture for a large number of years and the award is well merited; we offer him on behalf of ourselves and our colleagues of the horticultural press sincere congratulations. A Gold Medal will be offered to the amateur who stages the best exhibit of alpines in pots at the fortnightly meeting of March 23. It is a sad circumstance that two of the gentlemen elected to vacancies in the list of holders of the Victoria Medal of Honour, Mr. S. B. Dicks and Mr. W. R. Dykes, have passed away before the actual presentations of the medals were made. An appreciation of the late secretary is included in the *Book of Arrangements*, where it is stated that he devoted his remarkable abilities to the maintenance of the Society. The concluding paragraph of the Report voices the thanks of the Council to the members of the Society's staff, and we also tender our thanks to Mr. Frank Reader and his colleagues for the courtesy and help given, not only during 1925, but over very many years.

Royal Gardeners' Orphan Fund.—We would remind subscribers to the above horticultural charity that the Annual General Meeting will be held at "Simpson's" 101, Strand, London, W.C., on Wednesday next at 2 p.m. We learn with great pleasure that Her Majesty the Queen has graciously consented to become Patron of the Fund in succession to the late Queen Alexandra.

The Conservation of the Nation's Vegetation.—This is the title of a brochure by Mr. R. W. Ascroft, for some time Assistant Secretary of the Royal Horticultural Society. The purpose of the book is, obviously, to show the damage done to vegetation by smoke and to advocate the use of gas for heating, lighting and cooking purposes instead of coal. Mr. Ascroft states that the greatest amount of damage is done to vegetation through the sulphurous acids which enter the leaves through the stomata, and he gives figures showing the increase in the amount of this acid present in the atmosphere during a fog. Incidentally, he remarks that the cost of washing the glasshouses at Kew Gardens after a fog amounts to approximately £100. Dr. W. J. Russell computed that in Manchester so much as one-and-a-half hundredweight of sulphuric acid was deposited per square mile of surface during dense fogs. Almost equally injurious are deposits of tarry matter from domestic smoke, for in this tarry matter are such substances as pyridine and phenol, both of which are of an exceedingly poisonous nature in so far as plants are concerned. It is stated that the former substance is possibly responsible for the yellow discoloration which takes place in many flowers which have been exposed to fog.

Moscow Botanic Garden.—Mr. George Trespe, Curator of the Botanic Garden, Moscow, celebrated last month the twenty-fifth anniversary of his appointment. He was born in Riga in 1868. He was formerly for twelve years with a nursery firm in Moscow, where he finally became head of the seed control department before obtaining the Curatorship of the Botanic Garden.

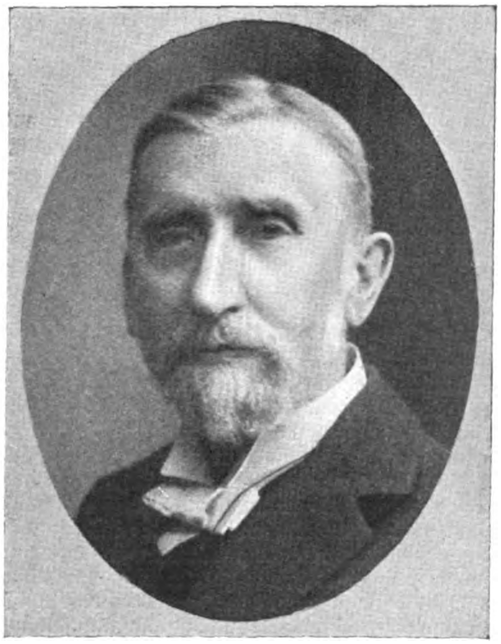
Plants in Flower in the Public Gardens, Nice.—Mr. S. J. Mackenzie informs us that at present Cyclamens, Cinerarias, Violas, Primula sinensis and Carnations are the chief flowering plants in bloom in the public gardens at Nice. Cyclamens are used extensively, 16,000 to 17,000 plants being raised annually to meet the requirements of the gardens and open spaces. Seeds are sown in August to produce flowering plants sixteen or eighteen months later. Primula sinensis and Cineraria grandiflora are also employed extensively as bedding plants. In the Jardin Albert Ivy-leaved Pelargoniums clothe the trunks of the Palms and are now in bloom in sheltered places. Palms are well represented by both pinnate and palmate leaved types, and there are some fine specimens to be seen in the Jardin Albert. Having a natural protection from the north, Nice enjoys a very mild climate; the mean winter temperature is 50°.

Forthcoming French Congresses.—The Féderation Horticole Professionelle Internationale is holding a reunion in Paris on February 13, beginning at 9 a.m. The proceedings, which will take place at the offices of the French National Horticultural Society, Rue de Grenelle, will include discussions on the American prohibition of bulb imports, the general question of customs duties and other relevant matters. It is almost decided that the eighteenth annual congress of the Federation of French Horticultural Societies shall be held at Rheims during the first fortnight of July, probably from the 5th to the 7th inclusive. The twenty-sixth Congress of the Société Française de Chrysanthémistés has been arranged to take place at Blois, from the 4th to the 7th of November, 1926. The proceedings will include an exhibition and several excursions to places of local interest, besides the usual discussions.

National Rose Society's Show at Southport.—The National Rose Society will hold its Jubilee Provincial Show at Southport in conjunction with the Southport Floral Fête, on August 25th, 26th and 27th. The Society's Schedule for this exhibition contains twenty-two classes, and the cash prizes offered amount to £260 10s. 0d. A novel arrangement in connection with the trade classes is provided by the division of the country into two geographical districts, *i.e.*, north and south of an imaginary line drawn from Spalding to Aberystwyth. The nurserymen north of this line, or in Ireland, will compete together, and those south of the line will compete with each other.

Sugar Beet Cultivation in Scotland.—According to the annual crop returns issued by the Board of Agriculture, Sugar Beet was grown on approximately 1,500 acres in 1925, as compared with 200 acres in the previous year. The crop, generally, is reported to have done well, except in parts of Bute and Stirling, where the sowings were failures, and the land was afterwards resown with other crops. In the eastern and northern districts, the yield ranged from six to twelve tons per acre, while on one farm in Forfarshire the weight is estimated at fifteen tons per acre. Snowstorms at first delayed the lifting of some of the crops, and while the condition of the crops is uncertain, the consignments sent to the factory have given from sixteen to nineteen per cent. of sugar. The handsome Silver Cup given by Mr. John McNiel, Glasgow, through the Kintyre Agricultural Society, for Sugar Beet grown in Kintyre containing the greatest weight of sugar, has been won by Mr. Alex Mitchell, Aros Farm, Campbeltown.

Rev. F. Page-Roberts.—It is with great pleasure we publish the portrait of the doyen of Rose growers, the Rev. F. Page-Roberts, whose genial wit, warm-heartedness and wide knowledge of Roses and rosarians have endeared him to all. Many rosarians have been such "from their youth up," but the Rev. Page-Roberts did not commence Rose growing until he went to Scole, in 1875, when he had as garden helper a village woman who "smoked a honest clay pipe, but not in public, to be seen of men." Although he did not know one variety by name when he began to cultivate Roses, he made good use of his opportunities and became successful, continuing his successes over a long period of years. In years long past, he and the Rev. Foster-Melliar were keen rivals, and on one occasion he set up his own and his rival's Tea Roses and equal first prizes were awarded! As a rule, the Rev. Page-Roberts was the better exhibitor—though not always the better grower—as he had a peculiarly happy and clever way of setting-up his blooms. For some time he lived at Halstead in Kent, and then moved to Strathfieldsaye Rectory, where he made a charming garden in which Roses became a fine feature. In recognition of his services to the National Rose Society that body elected the Rev. Page-Roberts as its President in 1909, an office he also held in the succeeding year, to the great delight of all who worked with him. For many years he was chairman of the Society's New Seedling Rose Committee, and in 1919 he was awarded the Dean Hole Memorial Medal. Nor must we forget his able services as a florist on the Floral Committee of the Royal Horticultural Society, and his remarkable ability as a judge of Roses, but he is probably best known for his "loving kindness" to all, and his "tender mercy" to novices. After a long life of usefulness, the Rev. Page-Roberts has retired from the living at Strathfieldsaye, and is now residing at Stratfield Sturgis, Basingstoke, where his many friends hope he will enjoy rest and health and strength—and Roses—for many years to come.



REV. F. PAGE-ROBERTS.

Gift to West of Scotland Agricultural College.—Some time ago, Mr. John Hannah, Girvan Mains, a prominent Ayrshire farmer and a successful raiser of early Potatos, purchased the estate of Auchencruive, situated a few miles inland from Ayr, and he has now offered, under certain conditions, to present the mansion house, policies and 400 acres of arable land to the West of Scotland Agricultural College for the purposes of a dairy school and experimental farm. It is understood that one of the conditions provides that a college shall be built at Auchencruive, and the various departments centralised in that building. This would involve the transference of the headquarters from Glasgow, and the Directors are considering this munificent offer as it affects the dairy school at Kilmarnock, for the lease of the Holms farm has expired, and they have been unable to come to terms respecting its purchase.

Presentation to Mr. R. F. Felton.—On the occasion of Messrs. Felton and Sons' (Hanover Square) Staff Ball, Mr. R. Forester Felton was presented with a handsome gold cigarette case inscribed, "To the dear old chief, from all at Hanover Square, some who have left and a few Covent Garden friends." Many relations and friends of the staff were present at the function, at the Adelphi Rooms, Edgware Road, A very pleasant evening was spent, and Mr. Felton, in acknowledging the presentation, spoke very highly of the loyalty of his staff.

A New Hybrid Cupressus.—In a communication to the Linnean Society, Mr. A. Bruce Jackson discusses a new hybrid Conifer, Cupressus macrocarpa × C. nootkatensis. It appears that a branch of a Cypress was received at Kew from Capt. Naylor, Leighton Hall, near Welshpool, and this excited considerable attention because it combined the characters of the two species named. The tree was raised in 1911 from seeds of a cone taken from a tree of C. macrocarpa growing about twenty yards from a specimen of C. nootkatensis which was evidently the pollinating plant. Capt. Naylor stated that a much earlier mating of these species occurred at Leighton in 1888, when his uncle, Mr. Leyland, raised the same hybrid from a tree of C. nootkatensis, the male parent being in this case the same tree of C. macrocarpa which took part in the reciprocal cross twenty-three years later. There appears to be no previous record of a hybrid in the genus Cupressus.

Daphne Laureola.—Miss K. M. Hinchliffe, Instow, who sends a few flowering branches of Daphne Laureola, reminds us that the present is a good time for readers to examine their plants of this early-flowering shrub with a view to ascertaining the fragrance and periodicity of fragrance of its green flowers. Readers will remember that a great deal of correspondence on this subject appeared in our pages during the spring of 1925, and it was suggested that correspondents should begin to examine their plants of this species in January, write down the dates of examination, time of day, weather, scent (or not) out-of-doors, fragrance when gathered and brought indoors, and do this every week or ten days for so long as the plant is in bloom, and finally send us their observations. We may add that the specimens from Instow arrived just as we were going to press, and when the box was opened certain members of our staff could detect a very little fragrance, while others failed to do so.

What are Flowering Plants?—The Linnaean Society, on Thursday, January 21st, was the scene of an interesting discussion which would have greatly puzzled earlier generations of botanists. At a big meeting most of the senior professors of the day were present to discuss the question as to whether a certain family of plants possessed carpels or not, and even diverged into a discussion as to what carpels are. Needless to say, the basis of this discussion was not a living family of plants, but an extinct group—that discovered and worked out in such careful detail from such unpromising fragments by Dr. H. H. Thomas and christened by him the Caytoniales. The plants are Jurassic in age and appear to have borne branches on which were placed small structures, each of which can be compared to some extent with a carpel containing several seeds. To some extent the plants seem to have been like the Pteridosperms, the Bennettitales, and even to have had foliage which had hitherto been considered that of Ferns. The origin of the flowering plants—now the dominant group of vegetation—has always been, since Darwin's time when people began to think about it, "an abominable mystery." As Angiospermic timbers have been discovered in the latest Cretaceous strata, it is reasonable to suppose that some form of Angiosperms existed in the Jurassic period. But, though the greatest minds were devoted to the discussion the other evening whether the Caytoniales could claim the distinction of being primitive Angiosperms or not, was left undecided. To the modern gardener who deals with plants about which there can be no doubt as to the group to which they belong, such a discussion gives a peep into a world of mystery and romance, and indicates that, although living plants are so established in their major differences, there was a time when the groups now dominating gardens had not differentiated even the main organs we know.

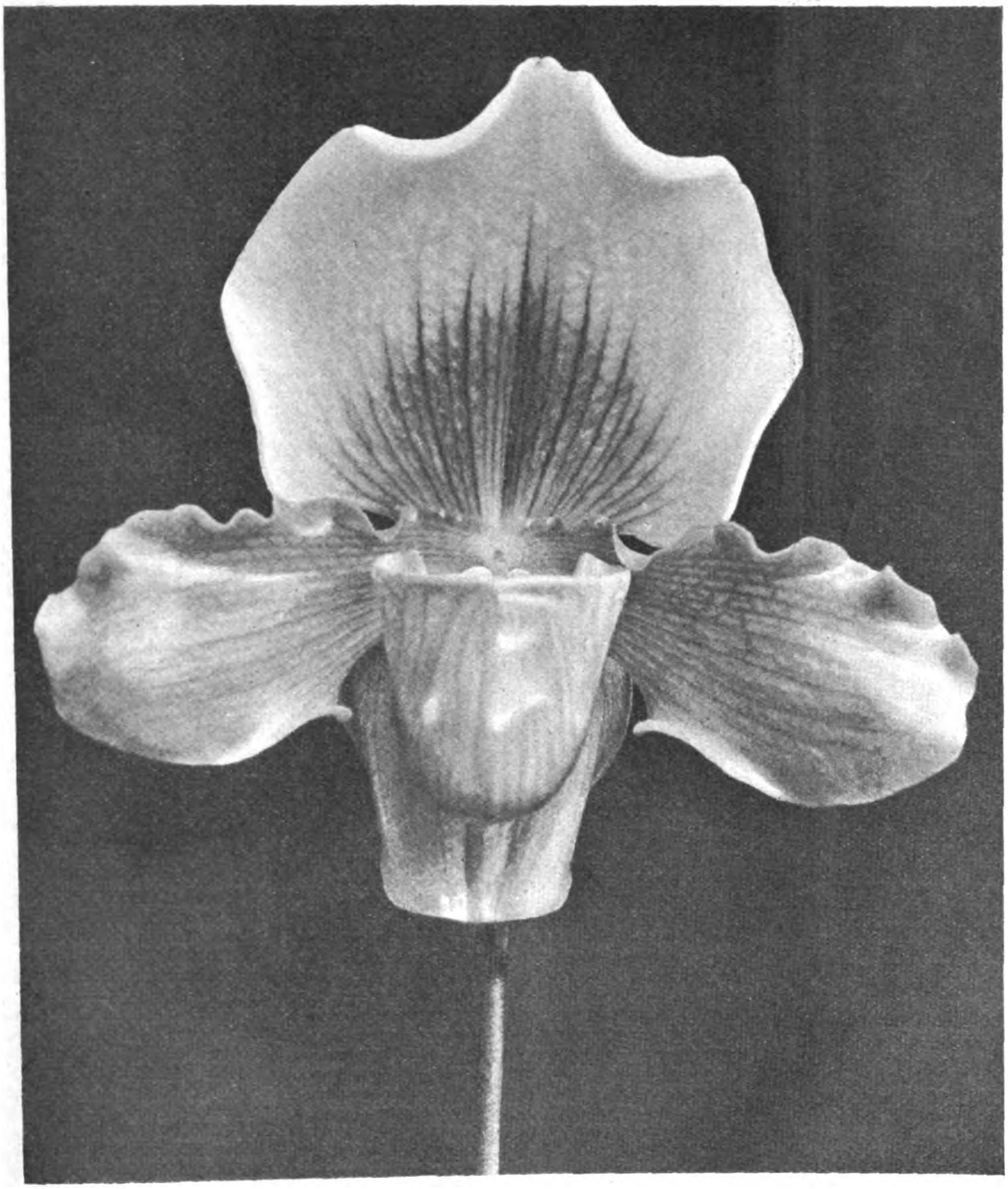


FIG. 47.—CYPRIPEDIUM SIR TREVOR.

R.H.S. First Class Certificate, January 26. Flowers green, yellow-green and white. Shown by G. F. Moore, Esq., Chardwar, Bourton-on-the-Water (see p. 88).

Appointments for the Ensuing Week.—Sunday, February 7: Wakefield and North of England Tulip Society's Meeting. Monday, February 8: United Horticultural Benefit and Provident Society's meeting. Tuesday, February 9: Royal Horticultural Society's Committees meet and annual meeting; Jersey Gardeners' Society's meeting. Wednesday, February 10: Royal Gardeners' Orphan Fund annual meeting and election at Simpson's, Strand; Glasgow and West of Scotland Horticultural Society's lecture; Wimbledon Gardeners' Society's meeting. Friday, February 12: Royal Horticultural Society of Ireland Council meeting; Orchid Club meeting.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Timber Preserving.*—At the back of the house, No. 22, Essex Street, Strand, a rail of Oak was, in the year 1771, placed round a flat roof of lead, at a height of perhaps ninety feet above high water in the Thames. The rail was composed of an upper and an under bar, each of them might have been about four inches in the square, the upper bar rounded off as a handrail; into these bars were morticed uprights of about two-and-a-half inches square. Robert Mylne (the architect of Blackfriars Bridge) directed that the whole rail should be left without paint or any other coating for two or three years, to season; it, however, never was either painted or coated in any way between that time and the year 1800, a period of nearly thirty years, and yet it was as sound at the end of it as when first put up. How long afterwards the rail lasted is not known. *M.* The remarks which have lately appeared on this subject, remind me of the following conversation. Walking one day with the late Mr. Atkinson, of Silvermere, in his grounds near a lake, where he had recently built a summerhouse of home-grown wood, I asked him whether he did not mean to give it a coating of something to preserve the timber? He said, "No." Would not brushing it over with linseed oil be a good precaution, without altering its appearance? "No; I think all such applications more calculated to induce decay," or words to that effect. He did not enter into the *modus operandi* of the application, nor did I ask him, but such was his opinion. When on this subject, I may mention an instance of durability in naked wood that, some years ago, fell under my own observation. Being engaged in alterations in a garden of which I had charge, it became necessary to remove an old frame-ground, surrounded by a Reed-fence, six feet high. The rails of the old frame were of Cherry tree, cut triangularly and fixed to Oak posts. These rails were never either pitched, tarred, nor painted. When taken down, they were crusted over with a brittle crust about one-sixteenth of-an-inch deep, and all besides was sound and hard as bone; an old man who had worked in the garden between forty and fifty years told me that these rails had been there ever since he had been, and to his knowledge had worn out two sets of Oak posts. Again, I have frequently known green poles of Willow, peeled and used as fencing rails, to last many years, and attain a sort of toughness and durability from exposure, that any one at first thought would hardly expect; and even Ash poles, split and peeled, will last many years; the action of the weather on the outer surface raises a sort of short woolly covering that wards off the rain. So far, my observation coincides with some of the remarks of your correspondents on this subject. *Quercus, Gard. Chron., February* 8, 1851.

The Week's Work.

THE ORCHID HOUSES.

By J. Collier, Gardener to Sir Jeremiah Colman, Bart., Gatton Park, Reigate.

Coelogyne Mooreana.—This Orchid blooms at this season and is deserving of inclusion in every Orchid collection. It is quite easy to cultivate, and grows well when suspended from the roof-rafters in a light position in the cool Odontoglossum house. Its upright spikes of white and yellow flowers are very lovely, and they last a long time in good condition. The best time for re-potting is soon after the flowers have faded. This Orchid should be afforded plenty of water at the roots during its growing season, but at all other times should be kept only moderately moist. Plants of Coelogyne cristata that have their flower spikes well advanced should not be allowed to suffer from want of water at the roots; moisture, however, should not be allowed to accumulate in the young growths or the flower scapes will probably decay.

Mexican Laelias.—These Orchids, which embrace Laelia anceps, L. autumnalis, L. Gouldiana and L. furfuracea, have been blooming for some time past, and as the flowers fade and the flower scapes are removed, the plants should be given attention in respect of re-potting or re-surfacing so soon as new roots are observed to be pushing from the bases of the last made pseudo-bulbs. Any plants occupying receptacles sufficiently large to accommodate another season's growth need not be disturbed, but where the old compost has become decayed it should be picked away by means of a pointed stick, the dusty particles washed out so that the drainage may be cleaned and made perfect, and fresh materials added. Coarse Osmunda-fibre, broken up rather roughly, with the dusty particles shaken away, forms a suitable medium. This should be pressed firmly around the base of the rhizomes of the plants. Specimens that have outgrown their receptacles may, if they have numerous pseudo-bulbs behind the leading growth, be broken up and made up afresh into shapely plants; retain two or three pseudo-bulbs behind each lead, and, in re-potting, keep the base of the plants just level with the rim of the receptacle. A few pieces of crocks inserted here and there in the compost will assist the free passage of water, which is always necessary for these plants. After root disturbance, water should be afforded very sparingly but the plant's surroundings should be kept moist in order to encourage root activity. The plants will grow equally well either in shallow Orchid pans or Teak-wood baskets.

FRUITS UNDER GLASS.

By T. Pateman, Gardener to Sir Charles Nall-Cain, Brocket Hall, Hertfordshire.

Strawberries.—The plants of the earliest batch of Strawberries are growing freely and show every promise of producing good crops. The flowers will soon be expanded and at this stage the atmosphere of the house may be kept slightly drier, with a liberal supply of fresh air whenever the weather is favourable for ventilating the house. Although plenty of fresh air is recommended care should be exercised against cold draughts. I never pollinate the flowers of Strawberries growing indoors, neither do I think it necessary to do so, for in my experience the fruits grow to a better shape than those that have been pollinated with the softest brush. As the plants pass out of flower they may be afforded a slightly higher temperature if ripe berries are required at the earliest possible date, otherwise I recommend a temperature of 50° to 55° by night with a rise of 10° by day by solar heat. Far finer fruits and of better flavour are to be obtained by moderate forcing. The plants should receive some aid in the form of an approved fertiliser, which may be given in a diluted state on frequent occasions. Further batches of plants may be introduced into warmth as required, care being taken not to start them into growth in a high temperature.

Early Pot Peaches.—The earliest Peach trees in pots will now be in flower, and at this stage the atmosphere of the house may be kept slightly drier during the early part of the day, with a liberal supply of fresh air so that the pollen may become quite dry by noon, when the flowers should be gone over with a feather brush or rabbit's tail to distribute the pollen. When it is found that the fruits are swelling it will be wise to attend to the watering of the trees several times daily, especially on bright, sunny days, when a liberal supply of air is admitted to the house. Trees in pots should never suffer through lack of moisture at the roots, and if by chance the soil has been allowed to dry to such an extent as to come away from the receptacles, apply a top-dressing of fine soil and water the same thoroughly so that it fills up the space caused by over-evaporation. The work of disbudding will necessitate close attention; remove carefully all badly-placed growths, taking care to preserve the basal growths for future bearing. This operation is best performed at intervals to obviate causing a check to root action. Fumigate the house to keep the trees free from aphis and close the ventilators early in the day to make the fullest use of solar heat.

Orchard House.—Where all kinds of hardy fruits are grown under glass it is a wise plan to have trees in reserve in the open to replenish any that may have deteriorated. There is still time to arrange for planting reserve trees against outside walls, where they may be allowed to grow into good fruiting specimens. These, lifted carefully, will scarcely feel the effects of replanting; moreover, a certain amount of fruit may be taken from them the first season, thus insuring against failure of the crop caused by taking out unprofitable trees.

THE KITCHEN GARDEN.

By F. Streeter, late Gardener to Major Albert Pam, Wormley Bury, Broxbourne.

Herbs.—It is advisable to grow all herbs together on a west border, if possible. Trench the ground deeply, manure it freely, and slope it well to the front. If the soil is of a heavy texture use plenty of road scrapings and leaf-mould to lighten it. So soon as the ground has settled and is in good condition for planting, mark out the beds for each subject according to the demand. Another interesting method of planting is to arrange the border similar to the herbaceous border, and plant in groups, obviating a formal appearance by planting Lavender, Rosemary, etc. In the case of established borders, a good top-dressing of rich, sifted soil should be applied when pricking over and cleaning it for the coming season. Be careful not to bury Mint roots too deeply or this may cause the whole crop to rot off. Label the plants carefully and keep the border smart and clean thoroughut the summer.

Shallots.—So soon as the ground is in a suitable condition, plant Shallots. Rake the surface as level as possible and press the bulbs into the ground about two-thirds their depth, ten inches apart in rows made twelve inches asunder.

Leeks.—To obtain perfect specimens of Leeks, a long season of growth is necessary and a longer period of blanching. Therefore, an early start should be made with sowing the seeds. Prepare a number of clean, well-drained, sixty-sized pots and fill them to within an inch of the top with a compost of two-parts turfy loam, one-part well-decayed leaf-mould, and one-part coarse sand. Make the soil firm with the fingers, place three selected seeds near the centre of the pot, and cover them with similar compost. Place the seed-pots in a fruit house having a temperature of 55° at night. Keep the pots shaded with pieces of paper until the seeds germinate, when the seedlings should be exposed fully to the light to ensure sturdy, stiff growth. Water the seed pans with tepid water about forty-eight hours after sowing the seeds. Prizetaker and Improved Lyon are excellent varieties for present sowing.

Peas.—Make another sowing, in boxes, of an early maturing varity as advised in an earlier calendar. Keep the first sowing just germinated in cold frames protected from frost, but admit plenty of air on all suitable occasions.

PLANTS UNDER GLASS.

By John Coutts, Assistant Curator, Royal Botanic Gardens, Kew.

Asparagus.—Asparagus Sprengeri, A. plumosus and its varieties are indispensable for decorative work, either in the cut state or grown for mixing with floral arrangements. The seeds should be sown in a warm house; their germination will be hastened if they are soaked for twelve hours in warm water, and the seed pots plunged in a warm case provided with plenty of bottom heat. Asparagus Sprengeri is invaluable for filling hanging baskets, while for the same purpose the lighter and more graceful A. decumbens is even better suited. The young plants should be pricked off singly into small pots, and when large enough, may be transferred to baskets, or grown on in pots, according to requirements. A. medeoloides (syn. Myrsiphyllum asparagoides) generally known as Smilax, is largely used in the cut state for decorative work, and where required in quantity for this purpose, the young plants are best grown in a bed or border, training the long, slender shoots up thin string, care being taken to keep each one separate so that they may be cut readily as required. There is a small-leaved variety known as myrtifolius, which comes true from seed. A. Zutzii is an elegant new variety, which flowers very freely and should prove useful for decorative work. This variety is easily raised from seeds, as also is A. virigatus, which makes an elegant pot plant and is useful for the cool greenhouse. All the species and varieties of Asparagus are free-rooting subjects and enjoy an ample supply of water with liberal feeding at the roots.

Exacum affine.—Although a biennial this Exacum may be successfully treated as an annual and the seeds should be sown in a warm house at the present time. If exceptionally fine plants are required it is best to sow the seeds the previous September. Unlike E. macranthum, the successful cultivation of this species presents no difficulty. It naturally makes a neat, free-branching plant, and produces its small sweetly scented flowers with great freedom. It succeeds, generally, in a somewhat lower temperature than the other species.

Saintpaulia ionantha.—This beautiful Gesnerad, with its Violet-like flowers, is easily propagated at this time by means of seeds, or leaf-cuttings. The seeds should be sown in a temperature of 60°, while the leaf-cuttings will root in an open bed of fibre and sand. The plants are best grown in forty-eight-sized pots, or several may be placed together in a shallow pan.

HARDY FRUIT GARDEN.

By W. Auton, Gardener to Viscount Elveden, Pyrford Court, Woking, Surrey.

Morello Cherries.—This fruit is very serviceable during the late summer for use in tarts and confectionery, is excellent for bottling and highly valued for preserving in brandy. Although trees succeed as standards, they are generally trained on walls with a northern aspect, where they yield excellent crops. Owing to this position the buds are not excited into growth early in the season, and the pruning and training of the trees may be deferred until such work is completed with trees in sunny aspects. Morello Cherries are not so susceptible to the attacks of various pests as many other fruit trees, but it is a good practice to liberate all the branches annually, thoroughly cleanse them, spray the walls with a good insecticide, and, after removing all unnecessary wood, relay them at regular distances and make them secure by tying or nailing. When the work is completed, apply a good sprinkling of bone-meal and prick it into the surface of the border.

Figs.—Although the Fig grows freely in almost any good soil, it does not always fruit freely in rich ground, indeed, generally, the shoots are too soft and luxuriant to mature fruit unless the roots are given a decidedly restricted area. It is always wise to ensure this by building concrete receptacles for the trees when planting, as even if a hard road or path is in front of the border, the roots travel under it in course of time, and control is then impossible. Given a warm, airy position, exposed to sunshine and this restricted rooting area, their fruiting presents no great difficulty, and regular cropping may be relied on. Any necessary pruning and nailing should now receive attention, and, as the fruits, which in our climate attains maturity in the open air, are generally produced on the extremities of the previous year's growth, it is obvious that these must be retained in pruning. The present work thus consists in thinning the shoots where overcrowding is likely to occur, and securing the main branches to the wall. Where a large wall space has to be covered, a system of training should be established which enables alternate branches to be cut out each year, to allow room for the new wood to be laid in for subsequent fruiting. The Fig tree, grown as a standard, or bush, needs little pruning beyond the thinning of the wood to allow air and light to reach every part of the tree. When planting in positions away from a wall it is less easy to enclose a rooting area, and where concrete receptacles are not practicable, precautions should be taken to prevent the roots growing downwards. To ensure this, a good plan is to put a good layer of chalk at the bottom of the prepared positions. If this is well consolidated the roots will not go through it; moreover, in periods of drought, they are able to extract considerable moisture from it.

THE FLOWER GARDEN.

By F. C. PUDDLE, Gardener to LORD ABERCONWAY, Bodnant, Taly-Cafn, North Wales.

Alpines from Seeds.—The raising of alpine plants from seeds is not only one of the most interesting phases of rock gardening, but a ready means of increasing stocks, as many species may be raised with comparative ease. Seeds of Saxifraga, Sempervivum, Campanula, Wahlenbergia, Primula, Dianthus, etc., may be sown on a compost composed of loam, leaf-mould and coarse silver sand in equal parts. Gentiana verna, G. acaulis and the stronger-growing species require a slightly more loamy compost. No attempt should be made to hasten germination with heat; the pots may be placed in a cool frame, with a piece of glass over each pot to conserve the moisture. So soon as the seedlings are visible the covering should be removed and free ventilation given. If the seeds have been kept for any great length of time, germination may not take place for some months, therefore the pots should not be discarded too readily. Sooner or later, every enthusiastic grower of alpines feels that insatiable desire to grow the more difficult species of the higher altitudes, such as Androsace glacialis, A. helvetica, A. pyrenaica, A. imbricata and A. cylindrica, and the most difficult of all, Eritrichium nanum. These plants are very impatient of moisture round their crowns, or extremes of either drought or wet at the roots; they also resent a humid atmosphere. The seeds may be sown five or six in a well-drained three-inch pot, containing a mixture of one-part loam, one-part leaf-soil, and three parts coarse granite dust or silver sand. When the seedlings have formed small tufts, the pots should be plunged to the rim in larger ones containing sand, so that a circle of sand half-an-inch wide remains between the rims of the two pots. If this sand is kept moist it is rarely necessary to water the inner pot in which the plant is growing. The outer pot should be as well drained as the inner one, for the plants will eventually root into this, consequently the inner pot should not be moved or these roots will be broken. Span frames are best in which to grow these plants of the high Alps, as they may be more freely ventilated than those of the lean-to type; if these latter are used, it will be found a good plan to remove a board, or a few bricks at each end of the frame, level with the plants, so that a direct current of air passes immediately over them. A few plants may be tried in special places in the rock garden, but it will be found the safer plan to keep the majority of these difficult subjects always in frames.

Bedding Plants.—Standard and bush Fuchsias and Heliotropes intended for bedding should be pruned forthwith. The green tips of the Heliotropes may be used as cuttings; they will root readily if inserted in sandy soil in a warm, close case. If a further supply of cuttings is required, a few plants of both Heliotropes and Fuchsias may be introduced into a moderately warm house; but the main batch of plants should be grown gently on in a temperature of about 50°. Bedding Pelargoniums may now be potted and placed in a recently started vinery or Peach house. If the plants have not been stopped, it will be better to do this now and defer the potting for another fortnight; fairly hard stopping will secure a better break than mere pinching.

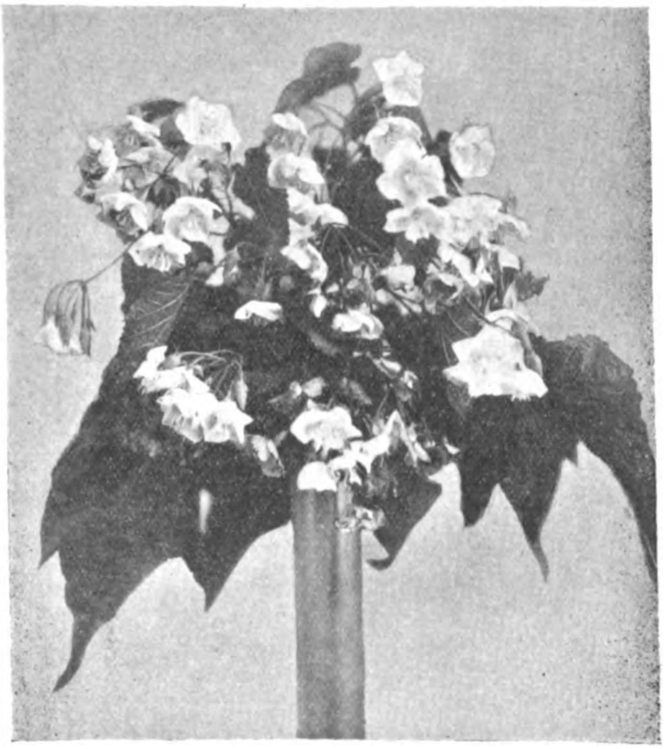


FIG. 48. DOMBEYA DAVAEI.

(see p. 99).

FOR NORTHERN GARDENERS.

By A. T. HARRISON, Gardener to the MARQUIS OF AILSA, Culzean Castle, Maybole, Ayrshire.

Bedding Plants.—Autumn-rooted cuttings of the various bedding plants including Pelargoniums (Geraniums) and Heliotropes should now be potted singly. Any deficiency in numbers may now be made good by inserting the required number of cuttings from stock plants. Cuttings of Pelargoniums root readily at this season if inserted around the edges of suitable sized pots, and do not damp off so freely as they do in autumn. They will provide useful small plants for setting out in June. The stock of Lobelia cardinalis, if wintered in a cool house, should now have the old flower stumps carefully removed, as these sometimes develop a fungus which decays the roots, and renders them useless. L. cardinalis may be increased readily now by division of the clumps, putting the divided portions into boxes filled with a compost containing plenty of leaf-mould.

Potato Planting.—A well-sheltered border, manured and dug some time previously, should be chosen for the earliest crop of Potatos. Fork the soil lightly, and when dry enough, open out the drills with a hoe or spade, allowing them to remain open for an hour or two if the day is warm. Place the sprouted sets carefully in the bottom of the drills, cover them and leave a ridge above the Potato sets. The extra covering will protect the growths from damage by frost, and keep the ground warm and dry. Some means of protecting the shoots from damage when they are showing through the ground should be at hand, and for this purpose Spruce branches on a light framework answer very well. This protection should be put in position every night when there is indication of frost and removed next morning. In this way it is possible to produce young Potatos early in May in our mild-weather districts, but for those inland, and in the eastern counties, at least a month later will be time enough to plant.

Pruning and Nailing of Fruit Trees.—Every favourable opportunity should be taken of proceeding with this work, as the sap is rising, but it is no economy or advantage to attempt it during cold or inclement weather, when some other operation such as digging or trenching should be undertaken. Young, vigorous fruit trees increase in thickness rapidly, and if not attended to in time the material by which they are tied will be found imbedded in the bark. The ties should all be removed annually and looser ones substituted, just sufficiently tight to ensure the branch or tree being kept in its proper position.

TREES AND SHRUBS.

RHODODENDRON SULPHUREUM.

RHODODENDRON "SULPHUREUM" as applied to the illustration in your issue of January 30 and referred to in the letterpress, is a misnomer. The plant is probably Cunningham's Sulphur; and if this be the case it is very doubtful if the parentage is R. caucasicum × R. arboreum album, since, although this is the pedigree given by Messrs. Cunningham and Fraser, there is no trace at all of the pollen parent. Mistakes sometimes occur in the records, as those of us who raise seedlings know; and I agree with Mr. Millais that this plant may be merely a good seedling from R. caucasicum var. stramineum. I am told, moreover, that it comes true from seed.

Seedlings raised from R. caucasicum var. stramineum × R. arboreum album show strong traces of R. arboreum in the leaf and closely resemble, even if they are not identical with, R. nobleanum album, which is supposed to be the reverse cross.

An altogether different plant has come to me also under the name of R. sulphureum, and is most likely a variety of R. campylocarpum. It has smaller leaves than the type, and smaller, more tubular flowers. For this the right name would appear to be campylocarpum var. sulphureum.

Now the name "sulfureum"—for this is the correct Latin spelling—rightly belongs to a Chinese species, which was discovered by Abbé Delavay and recorded by Franchet (*Bull. Soc. Bot. France*, XXXIV, p. 283), and its introduction we owe to Forrest. It is a small, rather straggling shrub, two to three feet high, with leathery, ovate leaves three to four inches long, glaucous beneath and covered with scales. The flowers are in fives, of a clear butter-yellow colour, two inches by one-and-a-half inch, with a curved style and a dense sprinkling of red-brown glands on the exterior, which enhance the beauty of the flower. As a garden plant it is almost if not quite hardy, and belongs to the Boothii phylum of the campylogynum series. *Peter the Hermit.*

COTONEASTER HUMIFUSA.

MR. GARDNER's note on Cotoneaster humifusa, on page 44, induces me to ask readers in northern gardens if they have found it fruit well with them. I had a large plant covering a rockwork mound, about twelve feet by six feet, and, although it flowered very freely, it never fruited, although most other Cotoneasters did, such as C. horizontalis, C. thymaefolia and several others in the same garden.

The non-fruiting was a source of much disappointment, yet C. humifusa is worth growing for its other merits, such as freedom of growth, freedom of flowering, its neat, low-growing habit, and the perfect cover it affords, where this is wanted, by its small, neat, deep green foliage.

All that Mr. Gardner states in its favour can be thoroughly endorsed, although his mention of its fruiting causes a feeling of regret that this little Cotoneaster has refused to fruit with me. I grew it where part of it had a good deal of sun, but part was in shade.

It is one of the easiest shrubs to propagate that I know, for its branches develop roots as they spread, and these shoots may be cut off and planted without any difficulty in establishing them. *S. Arnott.*

EVERGREEN CEANOTHUSES.

THE hardiness of these beautiful shrubs has been put to a somewhat severe test this winter, but they have come through 20° of frost without any protection. C. thyrsiflorus, the "Californian Lilac," and C. divaricatus of many lists, is one of the most robust and an excellent species for massing in open woodland, dry, hot banks and similar places. Though it will attain the stature of a small tree, it is, I think, better treated as a shrub, and a good group, planted rather thickly against a stretch of double-flowered Gorse, Cytisus praecox or C. scoparius Moonlight, can be singularly beautiful. The flowers are a pale azure, but so abundantly produced that they give the effect of a soft bluish haze which is always delightful against yellow. There is, however, much diversity in the colour of these blooms, and on their native hills this is often very apparent

C. papillosus is also a notable evergreen species, but it, too, is apt to vary considerably. Of this I have only one form, and it came under the name of C. floribundus. It is in every respect an excellent shrub, the small, narrow, bright green leaves (without the bluish metallic sheen, often seen on the foliage of the foregoing and others) being decurved at the edges and furnished with papillae. The flowers are borne in almost spherical corymbs of a clear, vivid blue; the branches are slender and whippy, and the habit dense, yet extremely elegant. This very charming species or variety is not quite so hardy as C. thyrsiflorus, but it has so far suffered very little injury here.

C. rigidus is a species of singular attraction, but it is said to be one of the most tender at Kew. Here, against a west wall, it has been perfectly satisfactory, and the deep, glossy green, close-set foliage of little leathery-toothed leaves is quite distinct. The stiff, straight branches do well against a wall and under such conditions this shrub should go up to at least a dozen feet and cover a wide area. In blossom, C. rigidus is not less distinctive than it is in other respects, the rich, violet-purple flowers being borne in the greatest profusion on the older wood in axillary umbels nearly an inch across. A well-grown specimen of C. rigidus in spring is thus a very beautiful object, and so unique that it never fails to arrest attention.

There is stilll a great deal of confusion in the nomenclature of the members of this genus, and the problem of identification is not rendered any simpler by the great variability of the plants in nature. *J. N., Wales.*

ALPINE GARDEN.

PRIMULA MARGINATA LINDA POPE.

I READ with intense interest the article on Primula marginata and its hybrids by Mr. Clarence Elliott, on page 61. He gives an excellent account of the several interesting hybrids he refers to.

Mr. Elliott places Linda Pope above the others in point of beauty, and few, if any, who know the respective hybrids he names will be disposed to cavil at his choice. It is a most beautiful plant, and the only pity is that it is so scarce and expensive. It is difficult to secure plants from nurserymen, as few traders stock it; doubtless the slowness of its propagation has a great deal to do with this.

At various times I have been asked where this Primula could be procured from the trade and have found it difficult to give a reply to this question; and frequently where Linda Pope was catalogued it was not in stock, and not forthcoming. *S. Arnott.*

ERICA VAGANS ALBA.

IN reply to Mr. S. Arnott's enquiry regarding the new white E. vagans called Lyonesse. I can assure him that while this fine variety is not free from what he considers a "defect," *i.e.*, the protruding dark-coloured anthers, the latter are much lighter in colour than they are in the old white form. But the main improvement, to my mind, in Lyonesse, is the greater size of the individual corollas (this tending to neutralise the effect of the anthers alluded to), the purity of the whiteness and the much longer and fatter racemes. Then, as in E. v. var. St. Keverne, the foliage of this new white is of a deeper green, and this also helps to accentuate the colour of the flowers. The raisers of E. v. var. Lyonesse are Messrs. Maxwell and Beale of the Dorset nurseries, and I believe it was first put on the market last year.

SAXIFRAGA GRANULATA.

THIS beautiful plant is one of the earliest to put forth a fresh spring green, its masses of little bulbils already being covered with the short-stalked, fleshy, kidney-shaped leaves. That there are various forms of S. granulata is well-known, but one rarely, if ever, sees more than one in gardens or the nurserymen's lists. I have a variety of much greater height and larger flowers than the type species usually seen, its stems sometimes rising to fifteen inches and the lovely blossoms being over one inch across. The leaves are hairy, but not so much as those of the average native species. Where this plant came from I do not know, having lost trace of its origin, but it is distinctive enough to arrest the attention of most people who see it.

S. granulata is a most adaptable species, doing well almost anywhere. But here it undoubtedly prefers a rather cool place, the foliage often withering up before midsummer where it is at all dry. As for the double-flowered variety, this doubtless lasts longer in bloom, but, to my mind, it cannot compare with the single type in elegance and refinement. *J., N. Wales.*

HARDY FLOWER BORDER.

PLATYCODON.

THE cultivated members of the genus Platycodon are remarkably effective tuberous-rooted perennials, flowering from June onwards. They are admirably adapted for either the herbaceous border or rockery. As rockery plants they are extremely effective if allowed to hang down over the rockery stones. The solitary flowers are produced on branching stems, from one-and-a-half foot to two feet tall. When established, the plants form densely branched bushes that give a profusion of blooms. The buds, before expanding, closely resemble inflated balloons and are exceedingly effective whilst in this stage; when fully expanded they are reminiscent of those of the Ostrowskia.

The plants grow best in a deep, well-drained, rich soil in a sunny situation. They should be planted from six inches to nine inches apart.

The rich, blue, prettily-netted flowers of P. grandiflorum are extremely showy, as also are those of the china white P. grandiflorum album.

P. autumnale is a late-flowering species. It has stout stems, two feet or more tall, surmounted with large, open, violet-purple flowers. It makes a grand border plant. P. Mariesii is a very rare Japanese plant of dwarf habit, not exceeding one foot in height, with large, rich blue flowers. This species is a good rockery plant. All the Platycodons are perfectly hardy, even in cold, clayey soils. They may be readily propagated from seeds or by division in spring. *W. Logan.*

LOBELIA CARDINALIS QUEEN VICTORIA.

WITH reference to the note on this plant in your issue of January 23 (p. 60), I may remark that in some northern gardens a cold frame or pit will not be found sufficient if the plants are to be in good condition in spring.

A slightly heated pit or frame is found necessary in some places, and with a little warmth the plants are much more vigorous and do much better than if wintered in a cold pit or frame. *A.*

EUPHORBIA WULFENII.

THIS handsome Spurge is always an ornament in the mixed border, woodland or foreground of the shrubbery, but it is never quite so striking as it is at this season.

Throughout the winter the narrow leaves of its ample foliage are a curious bluish green which deepens in colour as February approaches. Then the leaves nearest the apex of the flowering shoots develop a striking central line of red, the enormous flower heads almost immediately appear, and these, with their bold trusses of yellow blossom, will be conspicuous objects until spring is advancing into summer.

E. Wulfenii is a stout perennial, perfectly hardy, and it makes a dense, shapely bush up to three feet, possibly more, in height. It appears to do well in any average well-drained soil, and it is one of those plants which never seem to need any attention, yet which always look contented and healthy. *J.*

INDOOR PLANTS.

PRIMULA SINENSIS.

The indifferent manner in which the Chinese Primrose is grown in many gardens affords ample testimony that details of management in its cultivation are not always as well understood as they might be, hence a few hints and suggestions prior to the commencement of another season may be of use to growers who are not over successful with the plant.

It is yet too early to sow the seeds, but the importance of obtaining seeds of the highest quality makes it desirable not to unduly delay purchasing them

It is well-known that there is just as much trouble and expense entailed in cultivating a given number of plants, the flowers of which may not be worth looking at as there is in growing the same number that will produce flowers of the highest quality and be a source of much pleasure and joy. When it is considered that the difference in price between first- and second-rate seeds is so trifling it hardly seems possible that anyone can be so indifferent of his reputation as to buy that of an inferior strain. It should be borne in mind also that the finest strains of Primula do not produce seeds so abundantly as the inferior strains, hence it is not possible to buy seeds of a good strain at a low price.

The time of sowing must naturally be regulated to some extent by the period it is desired to have the plants at their best. To secure a stock of plants for flowering in autumn it is necessary to sow in late February or early March; for winter flowering, April is a good time to sow, while if a successional batch of plants is needed for late spring work a sowing may be made at the end of May. In all cases considerable care should be exercised in the manner of sowing the seeds, as Primulas generally are inclined to be erratic in germination. P. sinensis is no exception, and while moisture-loving to a high degree, it cannot bear anything approaching stagnancy at any stage from the seed pan to maturity.

Shallow pans are preferable to pots for sowing, but if more convenient, the latter may be used, and in either case they should be perfectly clean. To secure efficient drainage the pans should be well-crocked, using a layer of small crocks over the large ones and covering the whole with a layer of leafy material or rougher portion of the compost.

The compost that can be most highly recommended is prepared by thoroughly mixing three parts of friable, turfy loam, one part old hot-bed manure, one part flaky leaf-soil and a good sprinkling of sharp sand. The loam should be chopped into fairly fine portions and the leaf-soil and hot-bed manure may be rubbed through a coarse sieve, but it is not desirable to have a very fine compost, except for the surface layer on which to sow the seeds.

Fill the pan or pot to within half-an-inch of the rim, press the soil moderately firmly and make it perfectly level on the surface. Water thoroughly, and when the soil has drained, sow the seeds evenly on the surface and cover them with a sprinkling of sand. The seeds will germinate most readily in a temperature of about 55°, and if the pans are covered with a sheet of glass to check evaporation, and shaded, no further watering should be needed till germination is effected. Should moisture be necessary, however, standing the pans in a bath of water to the required depth is preferable to overhead watering.

In about three weeks the young plants will begin to make their appearance, when the sheet of glass should be tilted to afford ventilation, and after a few days removed entirely.

So soon as large enough to handle the young plants should be pricked off into pans of similar compost, placed in a cool position, shaded from intense sunshine but exposed to light whenever practicable. When they have filled these pans place them singly in small sixty-sized pots, give them a position as near the roof-glass as possible, and endeavour to promote a stiff, robust habit of growth by means of light and ventilation.

Immediately they have filled these pots with roots they should be transferred to five-inch pots, and for this potting a rather stronger compost may be used, adding an additional part of loam and substituting dried cow manure for hot-bed manure, if this is obtainable. Most of the plants will flower in five-inch pots, but plants from early sowings may still be potted on if extra large specimens are desired.

After May a cold frame is the best place in which to grow the plants and they will need ample supplies of water during the summer when growth is active. When established they will derive considerable benefit from occasional applications of diluted liquid manure, and for this purpose nothing is better than that obtained from cow or sheep manure. Care should be taken that the stimulant is perfectly clear, however, as if used in a turbid state a layer of manure will be formed over the surface which will not only present an unsightly appearance but prevent the water applied subsequently reaching the roots. A sharp watch should be kept for green-fly which sometimes attacks the plants, and timely fumigations should be given. The plants should not be exposed to any great degree of cold, and so soon as there is any probability of frost, remove them to the greenhouse, and as they come into flower transfer them to the conservatory, where, with proper care, they will remain in perfection a long time.

Some growers complain of their plants damping off at the base when fully grown. This may be attributed to their being potted too low, and is thus preventable. In the final potting the soil should be left slightly higher in the centre of the pot than at the sides when the water will be prevented from collecting around the base. During the winter great care should be exercised in the application of water, giving only just sufficient to keep the soil moderately moist. *A. P. C.*

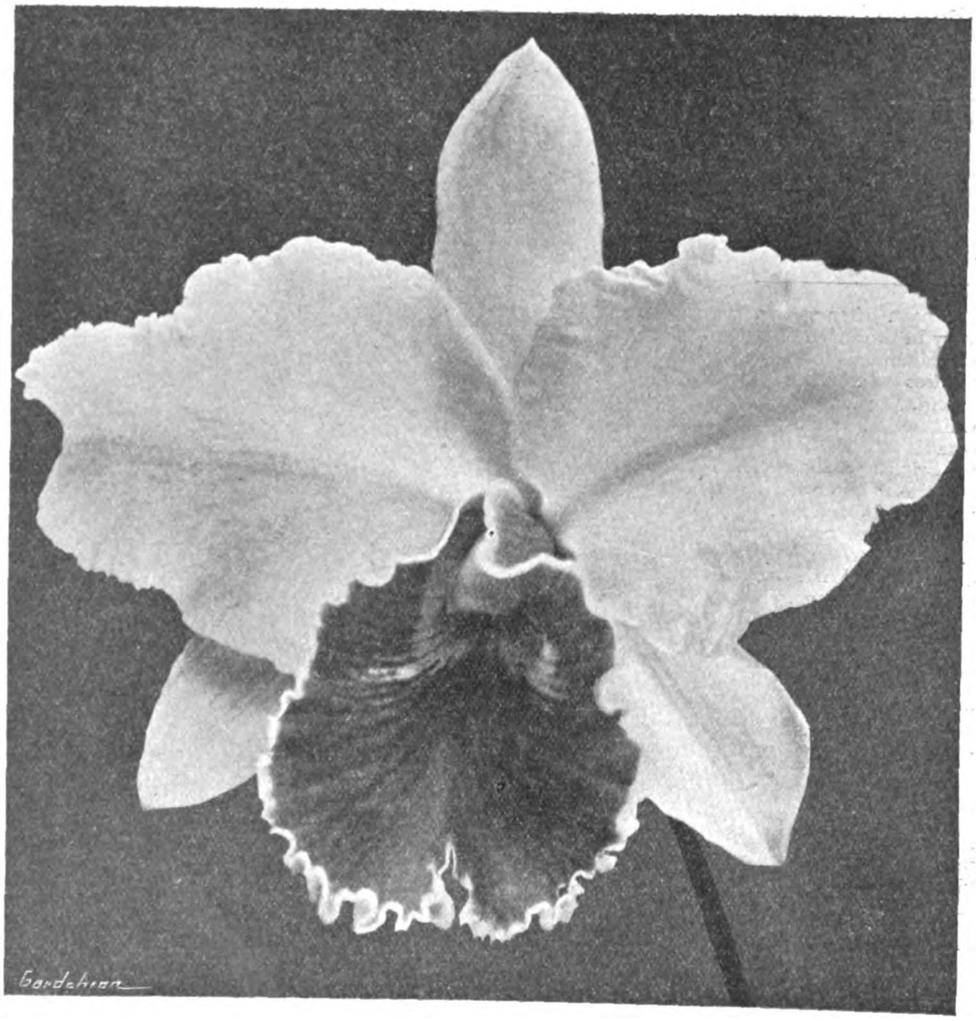


FIG. 49.—SOPHRO-LAELIO-CATTLEYA VULCAN VAR. PICOTEE.

R.H.S. Award of Merit, January 26. Flowers mauve, with rosy shading; lip purple, with mauve edge. Shown by Messrs. Black and Flory (see p. 88).

WALL GARDEN.

ANTIRRHINUM ASARINA.

Where this Antirrhinum succeeds it is a very useful plant. Though the flowers may be comparatively wanting in colour, the trailing habit and the large, Ivy-shaped, prettily scalloped leaves in a pale green, together create a singularly elegant effect. If the Snapdragon blossoms are of a somewhat watered yellow, with faint purple stripings on the "nose," one has to recognise the fact that they are large and yielded in extraordinary profusion from spring to the first frosts of autumn.

A. Asarina was introduced from Southern Italy so far back as 1699, but it has never become common in gardens, owing, probably, to it being somewhat tender and injured by excessive wet. I find that it does best between the stones of a very dry wall in full sun. In such a position a plant once established will prosper for years, making trailing shoots two to three feet long.

The whole of the plant is hairy, very sticky and brittle, and it produces seeds abundantly. This interesting plant is sometimes known as Asarina Lobelii. *A. T. J.*

GARDEN NOTES FROM SOUTH-WEST SCOTLAND.

It is somewhat interesting to note how a midwinter of unusual severity affects the date of early-flowering plants. Here it froze off and on practically from November 10 till Christmas. the temperature falling to 18°F. on three nights, and this has retarded the flowering of all except three species, namely Adonis amurensis, and the Witch Hazels—Hamamelis mollis and H. arborea—which never flinch from cold and carry their fragrant blossoms untarnished through frost and snow.

The following table shows the dates of flowering of several plants over four seasons.

	1922–3	1923–4	1924–5	1925–6
Adonis amurensis	5 Feb.	18 Jan.	...	8 Jan.
Eranthis hyemalis	23 Dec.	31 Dec.	26 Dec.	7 Jan.
Galanthus nivalis	5 Jan.	12 Jan.	20 Dec.	8 Jan.
Hamamelis japonica arborea	13 Jan.	31 Dec.	...	1 Jan.
Hamamelis mollis	26 Dec.	23 Dec.	19 Dec.	25 Dec.
Leucojum vernum Vagneri	25 Jan.	22 Jan.	5 Jan.	23 Jan.
Crocus vernus	14 Jan.	26 Jan.	20 Dec.	24 Jan.

Season after season the Witch Hazels never vary in profusion of bloom. Just as the advent of Hamamelis japonica var. arborea eclipsed the modest winter display of that old and tried friend, Cornus Mas, so did the coming of the Chinese H. mollis put us temporarily out of conceit with the Japanese species. It is certainly the brighter of the two, and the flowers are double the size of the other; but, after comparing old plants of each on this January afternoon, I incline to pronounce the colour effect of H. j. arborea to be richer than the other. At all events, it holds its own well as indispensable in these dark days.

The value of these fine shrubs is enhanced this winter by the almost total absence of Holly berries, the trees suffering reaction from the extravagant abundance of last year. Much as we unfeathered bipeds may miss the display, far more serious is the loss of provender entailed upon missel thrushes and their kin. Our old Scots proverb, "Many haws, many snaws" predicates special provision of bird food for hard winters; but whereas berries of many kinds were provided in extreme provision for the mild winter of 1924-5, the supply for the rigorous season of 1925-6 has been notably deficient.

The hybrid Escallonia langleyensis, so finely wreathed with carmine blossom at midsummer, also presents a pretty appearance in mid-winter. Inheriting an evergreen tendency from one of its parents—E. punctata—it retains its leaves into the New Year, when the foliage on the long, arching wands turns clear yellow.

Quercus Turneri, a reputed hybrid between Q. Ilex and Q. pedunculata, is another semi-evergreen, presenting a cheerful appearance at this season, and retaining its bright green foliage till it falls about the beginning of March. A tree of humble stature—I have never seen it more than thirty feet high, though it is said that it reaches fifty feet in some places—it should be planted clear of taller trees.

After the turn of the year it is well to take advantage of mild weather for setting out surplus herbaceous plants in open woodland. Many vigorous species require timely division and reduction in the border; among them, none is better worth attention than that fine American and Asiatic Wolfs-bane, Aconitum Fischeri. Its young growth is already above ground, but it will not be before September that it will crown its sturdy four-foot stems with dense spikes of lightish blue flowers.

Probably no royal manifesto ever fell more flat than the *Counterblaste to Tobacco* by King James VI and I. Doubtless, if that most economical of monarchs could have foreseen the amount of public revenue to be derived from that herb (£51,998,372 in 1925) his denunciation of smoking would have been less vehement. Many gardeners and amateurs agree with Edmund Spenser's estimate of tobacco as 'divine," but all of them may not have realised how materially the comfort of a fire-side may be increased by the provision of pipe-lighters three to five feet long. I learned this during the late war when lucifer matches were at a high premium and sometimes difficult to come by. I found that dry stems of Hemlock served well enough, but being of very light substance were soon consumed. The fallen dead branchlets of Araurcaria imbricata are more substantial and, when lighted, shoot forth a neat jet of flame from the tips; but they are awkwardly curved and will not stand properly upright beside the hearth. After trying a variety of plants, I find nothing equal to the dried stems of the Tiger Lily, which, being solid, yield a clear flame and last a long time. Considering the amount of useless and undesirable articles which are offered to philanthropic customers at bazaars, it might be worthy of the consideration of lady stall-holders whether Tiger Lily stems, done up in neat bundles and tied with gay ribbons, would not find a ready sale as pipe-lighters. One word of warning—beware of using the stems of the great Knot Weeds, Polygonum polystachyum, etc., for this purpose, because when the flame reaches a knot a sharp explosion takes place unpleasantly near the smoker's eyes. *Herbert Maxwell, Monreith, Wigtownshire.*

NOTES FROM GLASNEVIN.

Crocus laevigatus var, Fontenayi is one of the best and hardiest of the winter-flowering forms. A group in a sunny part of the rock garden is now in full flower and makes a pretty picture whether the flowers be closed or expanded. The ground colour is lilac, while the outside of the segments is heavily feathered with darker markings. Owing to the comparatively short tube and the presence of a certain number of leaves at flowering time, this variety suffers less from stormy weather than many of its kindred. In spite of the terrific gales and heavy rains the group in question shows no appreciable damage. C. vitellinus, rich yellow, but long and slender of flower, is also in bloom. The habit of this species renders it liable to damage by rough winds, and unless planted in a very sheltered position, the flowers are soon broken. With protection, however, from the overhanging branches of a dwarf shrub a proportion of the flowers escape and gladden the eyes of the visitor.

Galanthus cilicicus was the first Snowdrop of the season to bloom here. Less vigorous than G. Elwesii, it is nevertheless an attractive species producing glaucous leaves and true Snowdrop flowers on tall scapes. Mr. Bowles describes it in *My Garden in Spring* as a tall, slender form of G. nivalis, and records it as having opened several flowers with him on November 30, 1913. At Glasnevin, we expect to see the clump bursting through the soil before the Old Year is out, but so far as I can remember, we are usually into the New Year before the flowers appear.

Iris unguicularis, profiting by the warm days of last summer, is now in great beauty. The white variety was the first to open in mid-December, followed soon by the variety speciosa with lilac blooms; the distinct Imperatrice Elizabetta also calls for mention, the falls having a white ground margined and feathered blue purple. This form was acquired from Damman and Co., of Naples in 1891. Also in bloom is the variety marginata, with flowers inclined to blue rather than lilac.

Lithospermum rosmarinifolium is very freely covered with charming blue flowers showing well against the glossy dark green leaves. The plants have had no protection beyond being planted close to the wall of a greenhouse, and have experienced frosts varying from 7° to 15°, as well as violent winds and heavy rains. The reason for failure with this fine plant is, in my opinion, planting in too rich soil whereby the growth is rank and unripened on the approach of winter. I can imagine it doing well on the top of a dry wall.

Primula Winteri, planted in company with Ramondias and Haberleas, has been flowering for some time. A moist root-run but dry over-head conditions seem to meet its requirements. The position faces north and rarely gets any sun, and here, in early summer, the Ramondias and Haberleas flower profusely, while at present the grey, mealy leaves and pale lilac flowers of the Primula are conspicuous among the dark green leaves of its neighbours.

Moschosma riparium makes a fine group in the warm greenhouse, where the feathery panicles of small white flowers are reminiscent of those of a Spiraea or Astilbe. Although enjoying warm conditions during the growing season, the Moschosma does better in the greenhouse than the stove while in flower and during the subsequent resting period.

Agapetes Hosseana was introduced from Siam just over twenty years ago, and was first described by Professor Diels in *Fedde's Rep. sp. nov.*, vol. I, p. 16. The species has been in cultivation here for many years but is apparently of slow growth under cool greenhouse conditions. As growing here, it forms a dwarf shrub with somewhat stiff branches, leaves almost sessile, ovate, oblong and leathery, pale green below, darker above. The flowers, produced during summer, have red tubular corollas crowned by short lobes, and are usually solitary. The plant's chief interest at this season lies in the ornamental berry-like fruits, as large as small marbles, white, plentifully speckled with bright red dots. The genus, as a whole, is one of great interest and contains several handsome species.

Dombeya Wallichii (Fig. 50), a member of the family Sterculiaceae, is reputed to have been sent from the Mauritius to India, whence it was introduced to England by Dr. Wallich in 1820. The generic name has been changed more than once, and the plant in question has been known as Astrapaea and Pentapetes, according to the amount of importance attached to the bracts and other characters of the inflorescence by various botanists. In the *Botanical Magazine*, t. 2503, Astrapaea is used, as also in the *Botanical Register*, t. 691. There is an excellent figure in vol. I of *Sertum Botanicum*, a sumptuous work published in France nearly a hundred years ago. Dombeya Wallichii is the name now adopted in the *Index Kewensis*, and generally accepted by botanists. The specimen at Glasnevin grows in the Palm house, where it has reached a height of thirty feet, and has formed a considerable trunk which branches towards the top. The leaves are heart-shaped at the base, tapering abruptly to a sharp point: the blades are one-and-a-half feet wide, and the same in length, with petioles over a foot long. The inflorescence is in the form of a compact umbel hanging from a long, pendulous peduncle. The corolla is of a beautiful deep rose-pink colour, the styles far exceeding the staminal tube. From the figure and description of Dombeya Glaneliae (?) in *The Gardeners' Chronicle* of January 23, I should consider the plant is identical with D. Wallichii. I have no doubt our plant is identical with the figures quoted above, and I feel sure that D. Glaneliae is the same thing. D. Wallichii is by no means new to cultivation, although little known outside botanic gardens.

Jasminum Maingayi (*Bot. Mag.*, 7823) is a white-flowered Jasmine with entire leaves, and requires the temperature of the stove to develop satisfactorily. The opposite leaves are three to four inches long, dark green above, paler below. The flowers are produced in many-flowered umbels or cymes; they are pure white, but, unfortunately, scentless. The species is easy of cultivation and strikes readily from cuttings, forming a useful addition to the stove climbers at this season. *J. W. Besant, Glasnevin.*

DOMBEYAS.

In the issue of *The Gardeners' Chronicle* for January 16, I read with considerable interest the description of Dombeya Glaneliae (provisional name), to which the R.H.S. had given an Award of Merit on January 12.

According to the description, I felt almost sure that I had met with an old acquaintance, but it was not possible to feel certain, without having before me the plant itself or something definite to go upon. Now, however, on opening the copy of your paper received this morning (January 23), I have the pleasure of seeing a very accurate illustration which has fully confirmed my previous impressions. In a word, the illustration is that of Dombeya Cayeuxii, Ed. André, a description of which appeared in the *Revue Horticole*, 1897, p. 545, with a coloured plate which shows very well the colour of the flower. I raised this hybrid myself when Director of the Botanic Garden at Lisbon, by crossing Dombeya Mastersii with D. Wallichii. It is a magnificent plant, and hardy in places where the Orange tree grows. There are already some very fine specimens at Lisbon which have grown into veritable little trees, covered with large, pendant inflorescences beneath the foliage, and giving a very pleasing effect.

From the same cross I obtained, later, another variety which I named Dombeya Cayeuxii var. pallida. It differs from the first hybrid in colour, being pale pink, without the red centre which distinguishes D. Cayeuxii, type. This variety is at the moment flowering in the houses in the municipal nurseries at Le Havre.

The fact that the place of origin of D. Glaneliae is given as Madeira helps to confirm me in my certainty (Dombeyas being usually of African origin), as, on first obtaining this plant, I distributed it in quantity to horticulturists in Madeira, Funchal, etc., as well as in Algeria, Cap Vert and Egypt. I also sent some plants to your magnificent garden at Kew, where it probably still survives. See *Hand-List of Tender Dicotyledons Cultivated in the Royal Gardens, Kew*: p. 243. Dombeya Cayeuxii, Garden Hybrid (Mastersii × Wallichi).

While on the subject of the genus Dombeya, in which I am particularly interested, and of which I have cultivated numerous species, I should like to mention another hybrid, which I also obtained when in the Lisbon Botanic Garden, namely, Dombeya Davaei, H. Cayeux, which resulted from crossing D. spectabilis with D. natalensis, also described and figured in the *Revue Horticole*. This is also hardy in an Orange-growing climate, and is intermediate between the parents. It is literally covered with pink flowers in lax inflorescences produced in the axils of the leaves during springtime. I am enclosing a photograph (Fig. 48), which, unfortunately, is not very good, but which gives you some idea of the flowers. *H. Cayeux, Director of the Municipal Nurseries, Hotel de Ville, Le Havre, France.*

FLORISTS' FLOWERS.

NEW PERPETUAL-FLOWERING CARNATIONS.

The following new seedling varieties of Perpetual-flowering Carnations have been registered with the British Carnation Society. The descriptions are furnished by the Hon. Secretary, Mr. P. F. Bunyard.

Sybil.—A variety of purple-violet colour. The blooms measure three inches across and have a spicy fragrance. The plant is free-blooming and the stems are of medium substance. Registered by Messrs. Stuart Low and Co., Bush Hill Park, Enfield.

Sunrise.—A deep salmon variety with blooms three inches to three-and-a-half inches in diameter, and they are fragrant. Registered by Messrs. W. E. Wallace and Son, Eaton Bray, Dunstable.

The Favourite.—A flesh-pink variety with blooms three-and-a-half inches to four inches in diameter. Both the habit and stem are good. Registered by Messrs. W. E. Wallace and Son.

Moonbeam.—A white variety with blooms three-and-a-half to four inches in diameter. The flowers are fragrant and produced on good, stiff stems. Registered byMessrs. W. E. Wallace & Son.

Royalty.—This variety is deep mauve-coloured marked with cerise. The blooms measure three inches in diameter. The habit of the plant is good, and the flower stems are also good. It is said to be a free-grower. Registered by Messrs. W. E. Wallace and Son.

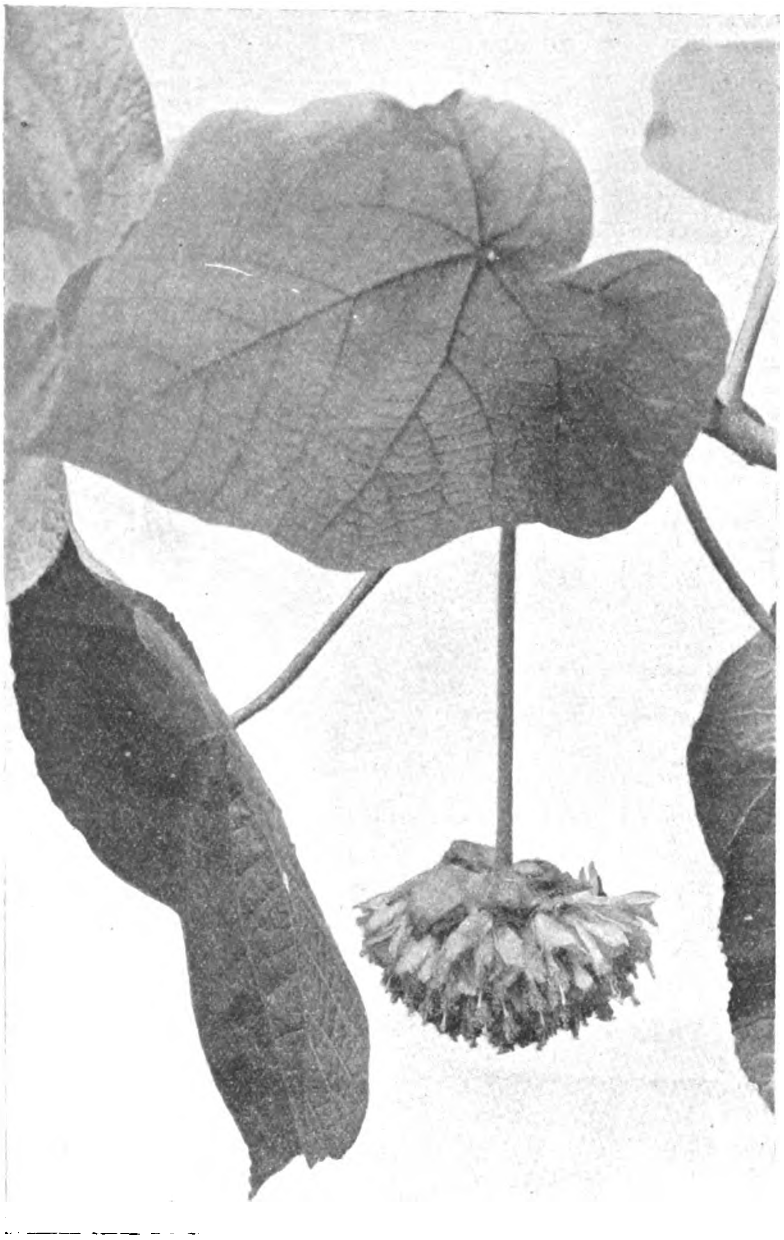


FIG. 50.—DOMBEYA WALLICHII.

(see p. 98).

Stephanie.—This variety has delicate mauve coloured petals resembling that of Peach blossom. The flowers are three inches to three-and-a-half inches in diameter. Both the habit and stem are good. Registered by Messrs. W. E. Wallace and Son.

Mrs. A. A. Viasto.—This variety has rosy-purple colouring on a white ground. The blooms measure three inches in diameter and have a fragrance similar to that of the Old Clove. The habit and stem are good; the stems are almost as strong as those of a Malmaison variety, some twenty-four inches to thirty inches long and self-supporting. The habit of growth and constitution of the plant are both excellent. Registered by Mr. J. C. Beck, The Nurseries, Henley-on-Thames.

SWEET PEAS.

Sweet Peas raised last autumn for conservatory decoration in pots should, if not already done, be placed in their flowering pots, those eight inches or nine inches in diameter being suitable.

The potting compost should consist of a good mellow loam, with sufficient sand to render the texture open and porous; a six-inch potful of bone meal may be added to every bushel of compost.

After re-potting them the plants should be carefully and neatly staked with slender canes. Cool treatment is essential at all times, and ventilation should be afforded, without causing cold draughts, on every favourable occasion. Water the roots very carefully until they are established in the fresh compost.

Where it is desired to grow Sweet Peas solely for a supply of cut flowers, the best results are obtained by planting them out in a cool house, which should be light and airy if the best results are to be expected. *C.*

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER, 5, Tavistock Street, Covent Garden, W.C. 2.

Urgent Communications.—*If sent by telegraph, these should be addressed "Gard. Chron.," Rand; or by telephone, to Gerrard,* 1543.

Letters for Publication *as well as specimens of plants for naming, should be addressed to the* **EDITORS, 5, Tavistock Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

NOMOCHARIS.[*]

THOUGH doubtless as old as the hills, Nomocharis is a modern genus in a botanical and horticultural sense, for it was founded only thirty-six years ago. When Franchet[†] formed the genus he had only one species before him—N. pardanthina—which Delavay had found growing in pastures in the calcareous soil of Mount Koua-la-po, above Hokin, in the Tali country, in 1883.

In 1898, Franchet described a second species N. meleagrina,[‡] from a specimen found by R. P. Soulié on Mount Sela, on the banks of the Mekong River, but made no further additions to the genus. Franchet placed the genus "mid-way between Lilium and Fritillaria; truly related to Lilium by the nature of the bulb, dorsifixed anthers and the style; inclining to Fritillaria by the foveolate petals. From both genera it differs by the hollow inflated lower part of the staminal filaments; the much-cleft and half-free foveolae, which is seen in no other genus; the dissimilar outer and inner lobes of the perianth, which are all widely-spreading."

It is not unreasonable to assume that the genus was created as a solution of the difficulty Franchet experienced in the determination of the particular Chinese Liliaceous material before him, which he could neither relegate to Lilium nor Fritillaria. Except for the particular plant with which he was dealing, the difficulty was not altogether met by the creation of a new genus, for only one of the characters on which he relied has stood the test of time; moreover, if Franchet had lived to our day he would have been hard put to it to find more than one good and constant botanical character to separate Nomocharis from Lilium. Nor would he have found it any easier to define Fritillaria, a genus which, in his own words, "cannot be precisely defined at the present time (1898) unless one restricts it to species with a campanulate corolla of the type of that in F. meleagris, and especially to those in which the style is trifid."

Yet in the field or under cultivation Nomocharis is as distinct from both Lilium and Fritillaria as the latter are from each other. So far as is known there is no Nomocharis with flowers at all comparable to those of a Lily, the perianth in all but N. lophophora being always flat or slightly cupped; that may eventually prove an important character in the determination of the genus.

Once created, Nomocharis remained more or less in a backwater till the late Sir Isaac Bayley Balfour took in hand the enumeration of such Western Chinese material as had reached Edinburgh, especially from Forrest, and finding therein several specimens of Nomocharis, proceeded with characteristic energy to elucidate their synonymity along with that of some specimens from Kingdon Ward.

Balfour was careful to point out that his conclusions, which were embodied in a paper,[§] must not be regarded as a critical determination of Nomocharis. In his own words: "I am delving in a field I have not worked in before, and my paper is really a series of extracts from laboratory notebooks rather than a finished paper. That, however, is all that seems possible at the present time."

Under Balfour's initiative, the Edinburgh Botanic Garden became the scientific home of Nomocharis in Britain, and it is fitting that the work so ably begun on the genus by the eminent Regius Keeper should be continued under the direction of his successor.

With the arrival of ample material from Farrer, Ward and especially Forrest, Mr. Edgar Evans has recently been able to elucidate several points which for some time have been obscure in regard to Lilium and Fritillaria, and to make certain adjustments and reductions in the genus Nomocharis itself. He has also added to the genus so that it now numbers twelve species, including two new plants, N. euxantha—a deep, yellow-flowered Forrestian Ka-gwr-pu species—and N. basilissa, of which Farrer wrote so characteristically.[*] Apart from that, there has been a reshuffling of certain Fritillaria, Lilium and Nomocharis, with the result that Franchet's L. apertum (not to be confused with the variety thibeticum), and L. Henrici are transferred to Nomocharis, along with F. Gardneriana, an old Wallichian species, and F. Souliéi, a brilliant species with wine-coloured petals, which, thanks to Forrest's success in securing seeds, is in cultivation in more than one direction. Finally, that much disturbed Himalayan species, Lilium oxypetalum[†] has, as it may be hoped, reached its final resting place as Nomocharis nana, a change of genus suggested by E. H. Wilson,[‡] to whom also is due the proposal to transfer Lilium Henrici to Nomocharis. The admission of L. oxypetalun to the Nomocharis fold gives that genus a far wider distribution to the west than it has hitherto been known to have.

Three of the species originated by Bayley Balfour (in the paper already referred to) from the material then available, have been reduced, as the more ample material since received shows that the specific characters relied upon cannot be maintained; they are N. Wardii, N. leucantha and N. Forrestii. The first named now becomes a variety of N. lophophora—an old friend, Lilium lophophorum, in the new guise in which it was placed by Balfour[§]—and N. leucantha is now attached, as a variety, to N. Mairei. It has been grown in the Inverleith Garden for eleven years, and is an engaging plant.

In the main, Balfour's division of the genus into three groups—Oxypetala, Eunomocharis and Ecristata is retained in the revision: but it remains to be seen how far this grouping of what is apparantly a relatively small genus can be supported as fresh material arrives. The division sometimes turns on almost minute botanical features, such as the fan-like fringing of the glandular arras of the petals, as in Eunomocharis, or the cresting of the nectaries which is a character of the Oxypetala group, as it is of some Lilies, though incidentally it fails in Nomocharis Wardii.

A botanical discovery of interest is the fact noted by Mr. Evans that in some species the female organs of the flower of Nomocharis may frequently be entirely wanting, and the suggestion is advanced that the suppression of these parts is the result of malnutrition. The point should be easy of determination in plants under cultivation, and has, in fact, been partly cleared up by the behaviour of N. Mairei in the Edinburgh Garden over a series of years. Cultivation, too, should help to decide many of the differences noticeable in the wild plants, differences which have their origin in relative altitude, aspect, soil, rainfall, —geographical considerations, in fact—but none the less baffling in the case of herbarium specimens. In this genus, too, as in others, seminal propagation will doubtless show how far petal colour—often an elusive character—can be relied upon; and in this connection something has already been accomplished, for in his consideration of Nomocharis saluenensis (late Lilium apertum var. thibeticum, Franchet), Mr. Evans notes that certain colour forms of the species, namely typica, purpurascens and tricolor, cannot be relied upon to breed true.

How far Nomocharis will ever be a garden plant no one can say. Slowly, very slowly, it seems to be making its way in isolated positions but at present the cultivation is largely empirical. The success achieved by Mr. McDouall at Logan with N. pardanthina suggests certain cultural indications which others may follow, though they may not be blessed with the same beneficent climate and surroundings. Only continued experiment or some happy chance can show the way, as it has shown the way in the case of scores of difficult plants, and it is fortunate that seeds should have reached the hands of so many competent amateurs.

Meanwhile, as the plants figured in the Supplementary Plate show, Nomocharis lends itself readily to pot treatment, so readily, indeed, in this case, as to present a feature that must be all but unique in Liliaceous families—the presence of unopened bud, fully opened flowers and ripening capsule on the same plant.
A. Grove.

In an article on Nomocharis which appeared in *The Gardeners' Chronicle* on February 28, 1925, Mr. A. Grove—whose writings on Lilaceous plants are of such value and interest to plant lovers—made the following statements:—"The out-door cultivation of Nomocharis in this country has proved singularly difficult . . . On the other hand there seems to be no particular difficulty in cultivating Nomocharis in pots under glass without heat. The failure of the genus in the garden may be in some measure due to the difficulty of keeping the bulbs reasonably dry when they are dormant."

In view of these remarks, the photograph of Nomocharis pardanthina (var. Farreri) growing in the gardens of Mrs. Walter Jones of Aberuchill, Perthshire, may be of interest. These plants were pot-grown, in a cold frame, and had no artificial heat at any time. During the resting period the lights were placed over them to keep off the rain. As is the case with many other bulbous plants, although top growth is annual, the root-system is more or less perennial, and there seems to be no doubt that the cold rains of the average British winter, by damaging the root-system, prevent plants in the open ground from reaching their full development.

The Nomocharis make useful companions to choice Liliums and other bulbous plants which, while hardy, reach their greatest perfection in a cool house, and no lover of uncommon plants who has seen good pot-grown specimens would begrudge the small amount of care and attention demanded. The photograph (see Supplement Plate) was taken by E. Graham Stirling, Esq., Comrie.
Frederick Brooker, Aberuchill Gardens.

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[*] *Notes from the Royal Botanic Garden, Edin.*, vol. XV. LXXI, pp. 1-46, with 14 plates (1925).

[†] *Jour. de Bot.*, vol. III, p. 113 (1889).

[‡] *Journ. de Bot.*, vol. XII., p. 196 (1898).

[§] *The Genus Nomocharis in Trans., and Proc. Bot. Soc. Edin.*, vol. XXVII, iii (1918).

[*] "Upper Burma and Yunnan. Chawchi Pass, alt. 12,000-12,800 ft. This species occurs, not abundantly but occasionally, in the dwarf cane brakes of the upper alpine region, so densely impacted in the roots that I have not yet succeeded in getting bulbs; it also has one small point of occurrence only, on the crest of the Chawchi Pass, in open grass. I suspect it also is an undeveloped *Nomocharis* down on the Chinese side. The flower colour is of a pure and luminous salmon-scarlet, unspotted, like nothing so much as some wonderful strain of *Papaver orientale*. There is no 'eye' of pallor between the uniform fire-colour of the corolla and the pit of darkness at its base. The stigma and style are not green but maroon-purple, so are also the swollen parts of the filaments; their upper parts like the anthers, are bright yellow. Aberrant monoecious specimens are not of very rare occurrence, with style and ovary wanting, but with the sixth stamen sitting in the middle of the other five pretending to be of the style." In flower, July, 1920. R. Farrer 1738.

[†] *Mon. Gen. Lilium.* t. 5, fig. 2 (1880).

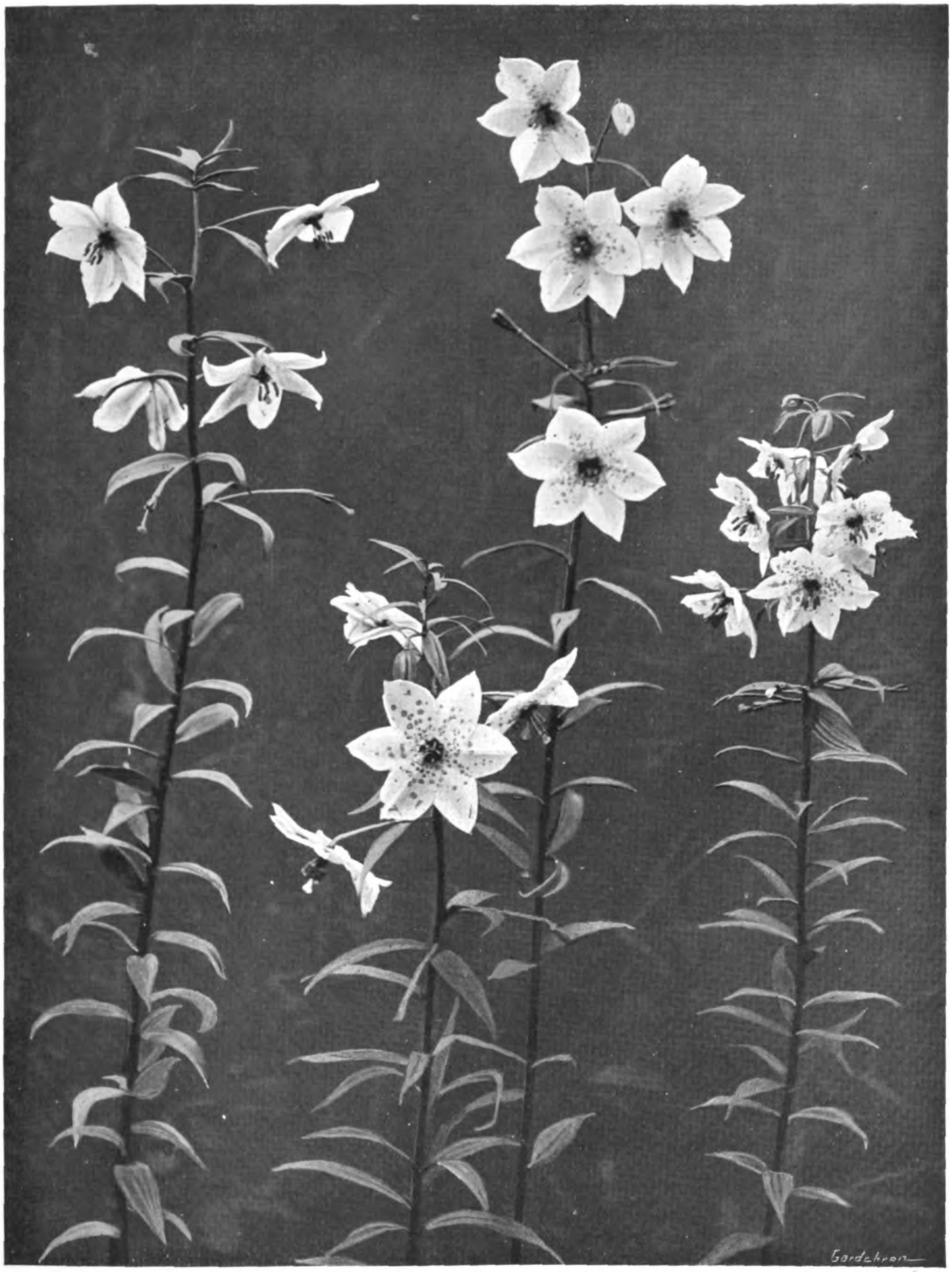
[‡] *The Lilies of East. Asia*, p. 13 (1925.)

[§] *Trans. Bot. Soc. Edin.*, vol. XXVII, iii., p. 293 (1918).

RIGHTS OF SUPPORT FOR CREEPERS.

IMPORTANT rights of support are secured by law under certain conditions to the owners of creepers. This was demonstrated in a recent case in which two judges of the High Court were required to adjudicate upon a Virginia Creeper, by way of appeal from a county court judge. The creeper had from time to time reached the gutter of a neighbouring house, the owner of which had been obliged to cut the creeper back to prevent choking of the gutter. Not content with that he went further, and sued the owner of the creeper for trespass. The county court judge held that the growth of creeper on the neighbour's wall was a trespass, but he refused to

Supplement to the GARDENERS' CHRONICLE.



NOMOCHARIS PARDANTHINA.

grant an injunction against its continuance. Instead, he ordered the owner of the creeper to pay £2 as compensation; partly for the damage it had done, and partly for the cost of cutting it back. He also made a declaration that the neighbour was entitled to enjoy his property free from interference, and that the owner of the creeper had no right to let it grow off his own premises.

The owner of the creeper appealed, as the important question as to his rights of support had been disregarded. The real question was: Could the growth of the creeper on the neighbour's house be justified by the existence of a right of support—what the law calls an easement? In the words of Mr. Justice Salter: "Was the county court judge right in holding that the defendant had no legal right of support against the plaintiff's wall for the creeper?" The two houses had originally belonged to one person, so that in those days there were no grounds for dispute. When the properties came into separate ownership, in 1918, the High Court judges held that an easement of support for the creeper was impliedly reserved. They held that this was the mutual intention of the parties. That being so, the easement justified the creeper being on the neighbour's wall. There was, however, a duty on the part of the owner to see that there was no undue interference with his neighbour's house, and therefore the award of £2 for damages was permitted to stand. The High Court held, however, that the county court judge was wrong in law in holding that the owner of the creeper had no right to the support of his neighbour's wall for the creeper. They accordingly struck out the declaration to that effect. The effect was that the owner of the creeper was entitled to let it grow on his neighbour's wall so long as it did not obstruct his neighbour's gutter.

In the event of an obstruction being caused, a neighbouring owner may cut a creeper away so far as is necessary, without notice to the owner of the creeper. If, however, the cutting can only be done by going on to the premises of the owner of the creeper, the latter's permission to enter must be asked. In that case he will probably prefer to clear the obstruction himself, to prevent any unnecessary damage to his creeper.

The right of support in the above case went back seven years. It must not be assumed that every seven years' growth gives such a right. Normally, a right of support can only be acquired under the Prescription Act, 1832, after twenty years uninterrupted enjoyment. The enjoyment of the right to an easement of support under the Act must be enjoyment "as of right." Therefore, if an easement is shown to have been enjoyed not openly, but by stealth, or if the person claiming the right has occasionally asked the permission of the neighbouring owner, no title is acquired under the Act, as the enjoyment has not been "as of right," but at the will and pleasure of the neighbour. It is only in special circumstances, as in the recent case quoted above, where one property was divided into two, that there is an implied reservation of easements. When that has happened, any period of enjoyment (however short) will enable an aggrieved person to take legal action to enforce his rights of support on his neighbour's wall, whether for Virginia Creeper, Roses, Ivy, Loganberries or any climbing plant. It is therefore possible that when a house is pulled down, the owner may be legally compelled to erect a hoarding or frame to support his neighbour's Ivy, whether the right of support has been acquired by very long usage or by implied grant on a recent partition of the premises. *R. W. Frazier.*

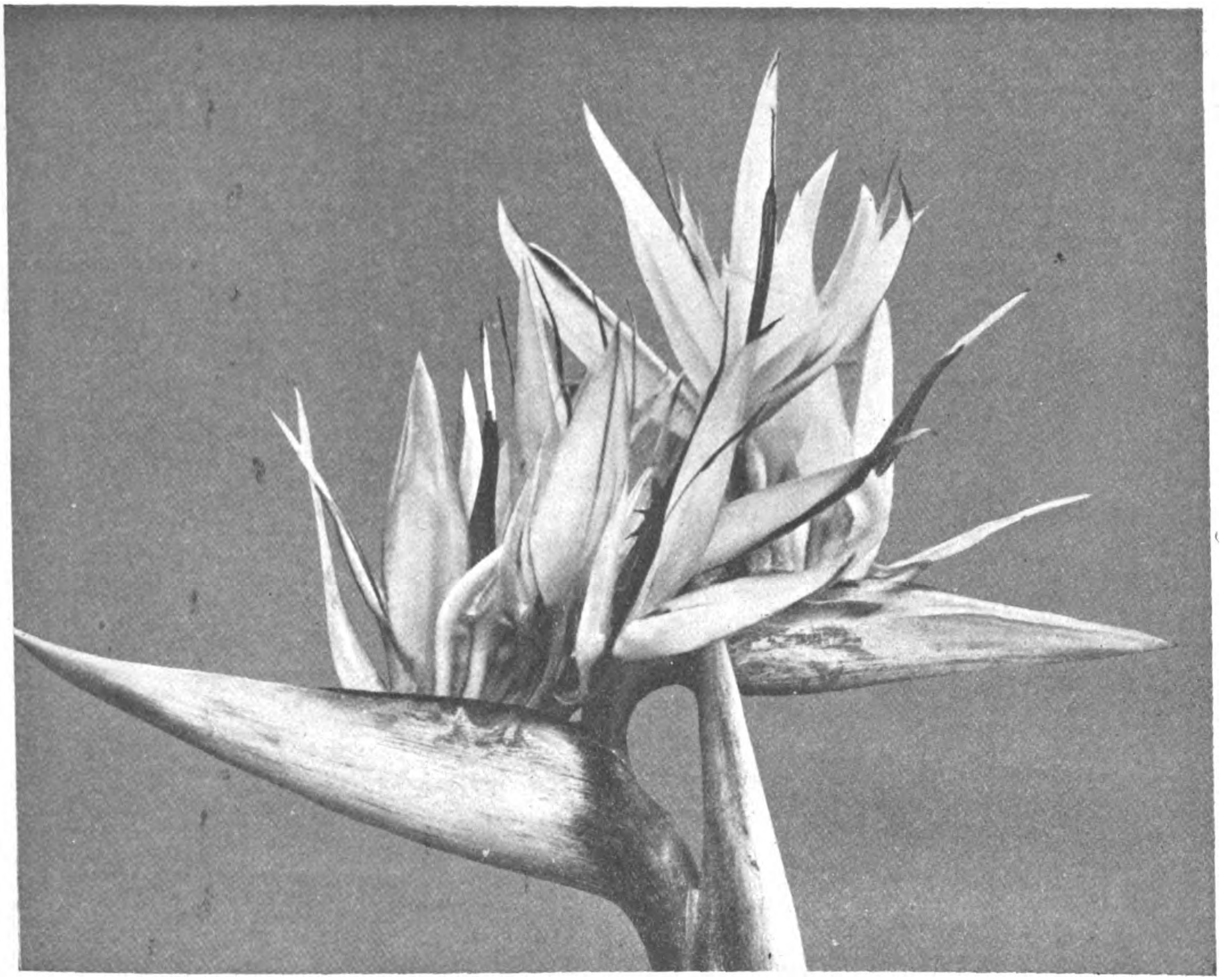


FIG. 51.—STRELITZIA KEWENSIS.
R.H.S. Award of Merit, January 26. Flowers pale primrose and purple. Shown by the Director, Royal Gardens, Kew. (see p. 88).

PLANS OF DRAINS.

I READ with sincere approval in *The Gardeners' Chronicle* of January 16 (p. 37), the suggestion that when new gardens are being made, etc., a plan showing the position of land drains would prove useful, and I hope the Earl of Chichester's proposal at the meeting of the Council of Agriculture will be acted on, viz., that legislation be introduced to make it compulsory in future for plans of drains on agricultural land to be attached to the deeds of the land, and also to any agreement for the letting of such land.

Some such legislation is surely needed, too, in connection with domestic drains. I am reminded of an experience I had a few years ago. I had been living in a cottage for a year or so, and in view of a lot of throat illness in my family during that time, my doctor advised me to have the drains tested. I wrote to the surveyor to the local powers asking him to test the drains. He replied that if I would expose the inspection chamber he would readily do so.

Exhaustive researches failed to reveal any trace or knowledge of an inspection chamber, and I could only find circumstantial evidence of the existence of drains at all. There were manholes in the road outside, suggesting a main sewer, and there were the customary above-ground gadgets about my premises to suggest drains beneath, but there was absolutely no evidence to show any connection between these and the sewer. Things passed down them, but what happened to them after was a matter of pure supposition. There was neither plan nor local lore nor legend to say whether we drained into the sewer, the gas main or the water main !

At the back of the cottage was a small asphalt yard, and in our part of the asphalt was a slight depression. A local labourer, wise in such matters, "felt it in his bones" that the inspection chamber was at this spot, so I engaged him to excavate and see. On returning a little later, I found an ugly gash in the asphalt, and my man standing by with a very scared face. He had put his pick through the asphalt and then stamped his foot, and had gone through up to the knee, and then, after an awful interval, he had heard a splash. It was a disused well, seventy feet deep and with fifteen feet of water at the bottom. Originally, it had been drained and boarded over, then gravelled over—and, later, forgotten—and lastly, someone had tarred the gravel. The beams and boards had entirely rotted away, and the only covering to that seventy-foot death trap was a slightly concaved skin of tarred gravel. It lay in the main thoroughfare from the road to the kitchen door. Every tradesman who came to the house walked over it ! I saw to it that this well was roofed over with enormously strong, re-inforced concrete, but I regret to say that I did not see to it that its existence and position were recorded in any local archive. There seemed to be nowhere to record it. Nor, bye-the-bye, did I ever discover the inspection chamber, nor the alleged drains. I left the cottage shortly after this adventure with the well.

I remember a rather similar thing happening, years ago, at a Chelsea flower show. Someone was excavating for a rock garden, when the wheel of a passing cart crashed through up to the axle into a disused and forgotten well. Memory of such incidents make me agree most heartily with the suggestion that the recording of drains, *all* drains, and wells, cesspools and underground tanks, too, should be compulsory. *Clarence Elliott, Stevenage.*

MESEMBRYANTHEMUM.

LITHOPS.

(*Continued from page* 80).

L. Francisci, N. E. Br.—Growths 9–18 lines high, 6–14 lines broad, and 4–9 lines thick, obconic, flat and elliptic in outline at the top, with a transverse fissure 3–7 lines deep ; surface smooth, glabrous, pale-greyish-white or dirty ivory-white, covered with dendritic green or grey-green markings and numerous darker or blackish dots, and sometimes flushed with reddish-yellow. Flowers not seen, described as being small, 5–8 lines in diameter ; petals about 30, linear-lanceolate, yellow. Anthers numerous, yellow. Capsule 5-celled.

Mesembryanthemum Francisci, Dinter in *Fedde Repert., Beihefte*, vol. XXIII, p. 62 (1923), and in *Zeitschr. f. Sukk.*, vol. I, p. 92 (December 1923), and vol. II, p. 19, with fig. (January, 1925).

Great Namaqualand : At Hahlenberg, Dinter 3743 ! and Kovis Mountains, Eberlanz and Stoeber.

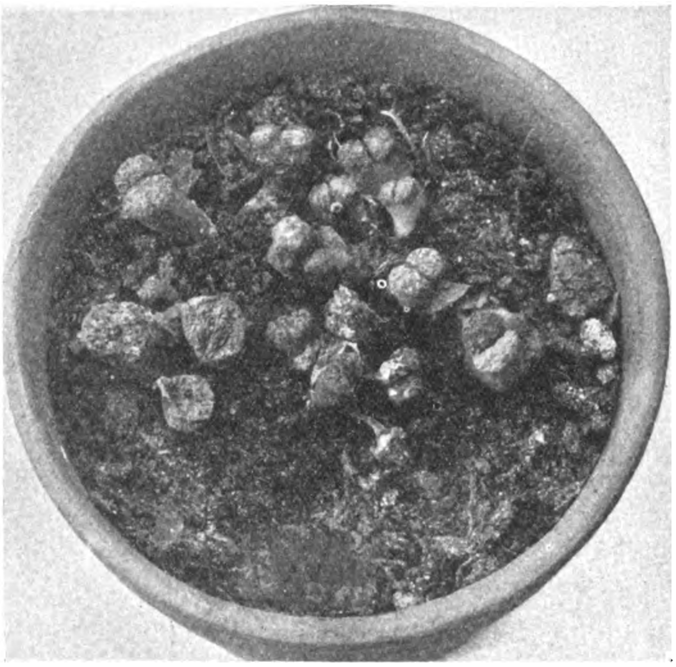


FIG. 52.—LITHOPS MARLOTHII, N. E. Br.
(Three-quarters natural size).

L. Friedrichiae, N. E. Br., in *The Gardeners' Chronicle*, 1922, vol. LXXI, p. 55. To this add the references :—Karsten in *Onze Tuinen*, July, 1924, pp. 42-43, with fig. Mesembryanthemum Friedrichiae, Schwantes in *Monatssch f. Kakt.*, September, 1920, p. 132.

L. fulviceps, N. E. Br., in *The Gardeners' Chronicle*, 1922, vol. LXXI, p. 55. To this add reference :—Karsten in *Onze Tuinen*, July, 1924, pp. 42-43, with fig.

Lithops Julii, N. E. Br.—Growth 9–14 lines high and 7–10 lines broad, obconic, elliptic in outline, with a transverse fissure 2–3 lines deep across the flat, wrinkled top, of a pale opaque greyish-opaline colour, marked with slightly depressed branching wrinkles that are somewhat semipellucid, and at the margins of the fissure with ochraceous-brown lines or dots. Corolla 12–14 lines in diameter ; petals numerous, 1 line broad, lanceolate (they are probably cuneately linear), obtuse, white.

Mesembryanthemum Julii, Dinter in *Zeitschr. f. Sukk.*, vol. I, p. 145 (June, 1924), and Dinter and Schwantes in *Zeitschr. f. Sukk.*, vol. II, p. 26, with fig. (March, 1925).

Great Namaqualand : Between Vahldoorn and Warmbad, and also near Warmbad, Dinter.

L. karasmontana, N. E. Br.—This name must take precedence of that of L. damarana as being the earlier, the synonymy being :—Mesemb. karasmontanum, Dinter and Schwantes in *Monatssch. f. Kakt.*, March, 1920, p. 36, with fig. M. damaranum, N. E. Br., in *Journ. Linn. Soc.*, vol. XLIV, p. 67 (July, 1920). Lithops damarana N. E. Br. in *The Gardeners' Chronicle*, 1922, vol. LXXI, p. 80 ; Karsten in *Onze Tuinen*, August, 1924, page 78, with fig.

This species occasionally produces 2 or 3 flowers from the same growth, which I have never observed to be the case with any other species of this genus.

L. Lericheana, Dinter and Schwantes in *Zeitschr. f. Sukk.*, vol. II, p. 25. Growths $\frac{2}{3}$-$1\frac{1}{2}$ inch high and 7–14 lines broad, obconic, more or less circular in outline at the top, with a transverse fissure $1\frac{1}{2}$-$2\frac{1}{2}$ lines deep, and the top of the lobes flat or very slightly convex, of a reddish-bluish-ochreous colour, with broad branched pellucid wrinkles. Petals white. Capsule 5-celled.

Mesembryanthemum Lericheanum, Dinter and Schwantes in *Zeitschr. f. Sukk.*, vol. II, p. 25 (March, 1925).

Great Namaqualand : Near Garub, Great Karas Mountains, Dinter.

L. Lesliei, N. E. Br., in *The Gardeners' Chronicle*, 1922, vol. LXXI, p. 65. To this add the following references :—Mesembryanthemum Lesliei, Schwantes in *Monatssch, f. Kakt.*, September, 1920, p. 129, and M. ferrugineum, Schwantes in *Monatssch. f. Kakt.*, June, 1922, p. 93.

The plant which Mr. Schwantes has named M. ferrugineum is merely a variety of the plant with the markings on the top, dense, and of a rust colour. For this plant, as do some other species of this genus, varies very much in colour, and in its markings ! I have about five variations in cultivation, one form being almost without markings on the top. The form named M. ferrugineum by Schwantes was found by Dr. R. Marloth in Griqualand West. I have the plant, and the same form also from the Transvaal and Bechuanaland ; it is densely covered with rust-coloured markings. Even in the same vicinity the colour and the density of the markings vary greatly, and under cultivation they vary somewhat from year to year. Their flowers also vary in size. This year two of my plants that are similar in colour and markings, differed greatly in the size of their flowers ; one had a flower 20-22 lines in diameter, with petals 8–9 lines long and stamens 5 lines long ; the other had a flower 30 lines in diameter, with petals 13 lines long and stamens 6 lines long.

L. Marlothii, N. E. Br. (Fig. 52).—Growths when first developed after importation 6 lines high ; 4–5 lines broad and 3–4 lines thick, probably becoming larger under cultivation, with a transverse fissure 1 line deep across the truncate top ; lobes equal or unequal sub-contiguous, flattish or very slightly convex on the top, rugose, from its surface being covered with small, glittering, bright, translucent green pimples intermingled with raised, irregular, branching lines, mostly directed inwards from the margin, and of a light creamy-ochreous opaque colour ; with age, the green pimples appear to become dull and brownish. Flowers not seen, probably small. Capsule when closed about $1\frac{1}{2}$ line in diameter, with a short conical point on the top, very pale brownish, 5- or occasionally 4-celled ; valves spreading, very acute, with the expanding-keels closely contiguous throughout into an acute pallid central keel, and with broad rounded membranous marginal wings that are more or less united in pairs between the valves. Seeds minute, about $\frac{1}{4}$ line long, ovoid, smooth, whitish.

Little Namaqualand : Near Ookiep, Marloth 6903 !

This very distinct species is small, but very charming, a real gem, especially when seen under a lens, quite unlike any other known to me, and I have very great pleasure in naming it after its discoverer, Dr. R. Marloth, who kindly sent it to me. *N. E. Brown.*

(*To be continued.*)

PLANTS IN FLOWER AT LA MORTOLA.

CECIL HANBURY, Esq., has forwarded us the following list of plants which were in flower in his famous garden at La Mortola, Ventimiglia, Italy, on January 1. The list enumerates four hundred plants, and those asterisked are species or varieties that were giving a good display of colour at the time.

Abelia chinensis, Abutilon Darwinii, A hybridum and A. striatum ; *Acacia Baileyana, A. brachybotrya, A. cultriformis, A. dealbata, A. glaucophylla, A. glaucoptera, *A. Hanburyana, A. lineata, A. Maidenii, A. microbotrya, A. neriifolia, *A. podalyriaefolia, A. pubescens, *A. retinodes, A. Sentis, A. Siebertiana, A. uncinella ; Agathaea coelestis and *A. hispida ; *Ageratum mexicanum, Albizzia lophantha ; Aloe abyssinica, A. affinis, A. arborescens var. Milleri, *A. arborescens var. natalensis, A. arborescens, var. Ueriae, A. caesia, *A. ciliaris, A. comosa, A. glauca, A. ferox, A. Johnstonii, A. laetecoccinea, A. laxiflora, A. longiflora, A. percrassa, A. Pienardii, A. pluridens, A. pretoriensis, A. Quihlii, A. rubrolutea, A. rubroviolacea, A. Salm-Dyckiana, A. smaragdina *A. speciosa, A. speciosa hybrida, A. spinosissima, A. succotrina, A. supralaevis, A. Wickensis and A. Winteri ; Alyssum maritimum, Anagyris foetida, Andropogon hirtus, Anemone coronaria, Antirrhinum majus, Aponogetum distachyum, Arbutus Unedo, Arum Arisarum, Asparagus aphyllus, Asphodelus acaulis, Azalea indica.

Banksia marcescens, Begonia miniata, B. macrophylla, B. Rex, and B. semperflorens ; Bellis sylvestris, Berberis glauca, Bergenia cordifolia, Bignonia australis and *B. venusta, Billbergia speciosa, Borago officinalis, Bougainvillea glabra, *B. glabra Sanderiana, B. spectabilis and *B. lateritia ; Bouvardia leinantha, *Buddleia asiatica, B. auriculata, *B. madagascariensis, and B. officinalis ; Brassica insularis.

Caesalpinia tinctoria, Calendula arvensis, *C. officinalis fl. pl., and C. stellata ; Camellia japonica, Campanula Trachelium, *Canarina Campanula, Cassia artemisioides and *C. tomentosa, Casuarina Cunninghamiana, C. equisetifolia, C. glauca, C. stricta, and C. torulosa, Caltha edulis, Ceanothus azureus, Centaurea aspera and C. Cyanus, Cepholataxus drupacea, Cestrum aurantiacum, C. Parquii and C. suberosum ; Cheiranthus Cheiri, *Chimonanthus fragrans, Chlorophtum elatum, Chrysanthemum anethifolium, C. frutescens, and C. hybridum ; Cineraria stellata, Cistus incanus, Citrus Aurantium and C. Medica, Centranthus ruber, Clematis cirrhosa, Clivia miniata, Colletia cruciata and C. spinosa, Correa Lawrenceana, Colquhounia vestita, Convolvulus floridus, Coriaria sinica, *Coronilla glauca, Cotoneaster divaricata, Cotyledon macrantha, Crassula lactea and C. portulacea, Crotolaria capensis, Cyclamen persicum, Cyperus alternifolius.

Dasylirion glaucophyllum and D. serratifolium, Dimorphotheca Ecklonis, *Diplopappus filifolius, Dodonea Thunbergiana, Dombeya Cayeuxii, Duvernoya adhatodoides.

Echeveria gibbiflora, ***E. multicaulis, and E. pachyphytioides ; Echium formosum and E. plantagineum, Eleagnus pungens var. reflexa, Ephedra altissima, Eriobotrya japonica, *Eriocephalus africanus, Escallonia floribunda, Eucalyptus coriacea, E. crebra, E. ficifolia, E. diversicolor, E. Globulus, E. melliodora, and E. sideroxylon*, Eupatorium calaminthifolium, *E. grandiflorum, E. micranthum and E. album ; Euphorbia dendroides, E. grandicornis and E. triangularis ; Euryops spathaceus, Farfugium grande, Felicia abyssinica, Forsythia intermedia, Fraxinus xanthoxyloides, Freylinia oppositifolia, Fuchsia arborescens, F. corymbiflora, F. hybrida, *F. triphylla, and F. splendens ; Fumaria officinalis.

Gaillardia picta, Garuleum viscosum, Gasteria Lauchei, *Gazania splendens, Genista ferox, and *G. monosperma, *Gerbera hybrida and G. Jamesonii, Globularia Alypum, Grevillea Preissei and G. Thelemanniana, Gynerium argenteum.

Hakea cristata, H. laurina and H. suaveolens ; Halleria lucida, Hedera canariensis and H. Helix ; Hardenbergia Comptoniana, H. monophylla rosea and H. monophylla violacea ; *Heliotropium peruvianum, Helleborus hybridus and H. foetidus, *Hexacentris coccinea, Hibiscus Rosa-sinensis, Hyacinthus romanus.

*Iberis semperflorens and I. sempervirens ; *Iochroma coccinea, I. grandiflora, I. lanceolata and I. tubulosa ; Iris germanica, *I. unguicularis, I. unguicularis var. alba.

Jacobinia magnifica, J. pauciflora, and J. penrhosiensis ; Jasminum nudiflorum and *J. primulinum, Juniperus Oxycedrus.

Kalanchoë Dyeri, K. marmorata and K. Schimperiana ; Kleinia ficoides, K. mandraliscae, K. neriifolia, K. nyikensis, K. odora, and K. repens.

Lantana Camara, *Lathyrus odoratus and L. sativus, Laurus nobilis, Lavandula abrotanoides and *L. dentata, Leonotis Leonurus, Leptodermis lanceolatus, Leptosyne gigantea, Linum grandiflorum, Lobelia speciosa, Loeselia coccinea, *Lonicera Standishii, Lopezia miniata.

Mahonia Bealei, Malvaviscus mollis, Mamillaria elegans and M. rhodantha, Matthiola hybrida, Mesembryanthemum aequilaterale, M. blandum, M. blandum atropurpureum, M. confertum, M. corniculatum, M. curviflorum, M. diversifolium, M. echinatum, M. Ecklonis, M. elegans, M. ficifolium, M. laeve, M. lepidum, M. linguiforme, M. megarhizum, M. productum, M. rubricaule, M. stelligerum, M. subincanum and M. tigrinum ; *Montanoa bipinnatifida and M. tomentosa ; Monstera deliciosa, Moricandia arvensis, Muehlenbeckia complexa and M. platyclada ; Myoporum acuminatum.

*Narcissus canariensis, N. Tazetta aureus, N. Tazetta pachybolbus, and N. Tazetta polyanthus ; Nardosmia fragrans, Nemesia strumosa, Nerine Bowdenii, Nicotiana glauca.

Odontospermum sericeum, Olearia Forsteri, Oreopanax dactylifolius, O. capitatus and O. palmatus ; Othonopsis cheirifolia, Orobanche ramosa, Osmanthus Aquifolium and O. fragrans, Othonna crassifolia and O. triplinervis, Oxalis cernua and *O. purpurea.

Paspalum dilatatum, Passiflora capsularis, *Pelargonium lateripes, P. peltatum and P. zonale ; Peumus Boldus, Photinia serrulata, Phylica rosmarinifolia, Pilocarpus pennatifolius, Pithecoctenium buccinatorium, *Plumbago capensis, Poinsettia pulcherrima, Polygala cordata, P. myrtifolia and P. apopetala ; Primula kewensis, *P. malacoides, *P. obconica, and *P. sinensis ; Psiadia glutinosa.

Rhaphiolepis indica, *Reinwardtia trigyna, Reseda Phyteuma and *R. odorata, Rhamnus Alaternus, Rhipsalis Cassytha and R. zanzibariensis, Rosa Banksiae, *R. bourbonia, *R. indica, R. indica major, R. sinica anemonaeflora, R. viridiflora and *R. Thea var. Safrano, *Rosmarinus officinalis and *R. humilis, Ruta graveolens, Ruscus Hypoglossum and R. Hypophyllum, Russelia juncea.

Salvia cacaliaefolia, S. chamaedryoides, S. discolor, S. Grahamii, S. gesneraefolia, S. elegans, S. amarissima, *S. Heeri, *S. involucrata, S. leucantha, *S. mentiens, S. mexicana, S. pulchella, S. paniculata, *S. semiatrata, and *S. Sessei ; Schinus dependens and S. Molle, Sarcococca pruniformis, Satureia viminea, Sempervivum arboreum and S. holochrysum, Senecio angulatus, S. deltoides, *S. grandiflorus, S. longiflorus, S. hadiensis, S. mikanioides, and S. Petasitis ; Sida mollis, Solanum auriculatum, S. Hartwegii, S. jasminoides, S. nigrum, and S. sisymbrifolium ; Sphaeralcea umbellata, *Statice brassicaefolia, S. macrophylla, S. macroptera, and S. Perezii ; Stenolobium stans, Streptosolen Jamesonii.

Tagetes lacera, Tecomaria capensis, *Templetonia retusa, Tetrapanax papyriferum, Teucrium fruticans and T. heterophyllum, Tournefortia Messerschmidia, Tropaeolum majus.

Ulex europaeus.

Verbena officinalis, Veronica Andersonii and V. salicifolia, Viburnum Tinus, *Vinca major and V. media, Viola odorata, Visnea Mocanera, Vittadina triloba.

Westringia rosmariniformis.

*Yucca elephantipes and Y. flexilis.

FORESTRY.

THE INFLUENCE OF PROLONGED DAYLIGHT IN THE VEGETATIVE SEASON ON THE QUALITY OF CONIFEROUS TIMBER GROWN AT HIGH LATITUDES.

(*Continued from p. 84*).

IN Finland, all of which lies to the north of the 60th parallel of latitude, and which produces "in the finest quality the timber trees most commonly used for architectural and building purposes," it is in the north that, according to M. Frederiksen, "we often meet with the long, healthy Pines, as straight as the most perfect columns, and such as are rarely seen in Central Europe."* From about the middle of Finland (approximately 64°) to the southern limits of the country we have a forest area which corresponds in latitude with that of the great forest region of Northern Russia. In the south, according to M. Frederiksen, in a moderately rich soil, the Scots Pine takes 82 years to attain a diameter of 7¾ inches (approximately 24 inches in girth) at 23 feet high; in Central Finland it takes 105 years, and in the north 130 years to reach the same diameter at this height. These girths give respectively 21, 27, and 33 wood rings to the inch. In the Lake Enare district (70° N.), where the longest "day" corresponds to two months, a Pine takes over 300 years to attain a diameter of 10 inches at 20 feet high, giving about 60 wood rings to the inch, but at this latitude useful tree growth has, of course, passed its northern limit, and there, just as at extreme elevations at lower latitudes, it is extremely slow.

In the northern hemisphere the timber of the Scots Pine, when grown under natural conditions, that is, as self-sown, untended forest, exhibits, as we have seen from statistics already published, a progressive diminution in the width of the annual wood rings as its habitat recedes farther and farther from the southern limit of the distribution of the species, and this is correlated with a progressive diminution in the chemical intensity of the sun's rays, direct and indirect, and of weaker and weaker illumination, owing to their increasing obliquity and the greater and greater depth of atmosphere which they have to penetrate, as we go northwards. Were the earth's axis perpendicular to the plane of the ecliptic, the production of this or, in fact, of any other kind of timber at these high latitudes would be impossible, for there would be no seasons, the daily duration of sunlight would be equal over the whole globe, and its intensity in these latitudes would be insufficient to produce it. All over the globe the sun would ascend daily to a position above the horizon corresponding to the co-latitude of the point of observation, and everywhere the climatic conditions which now obtain at the equinoxes would be constant throughout the year. The northern limits of the Scots Pine and Spruce, and of all other seed-bearing plants, would recede many degrees southwards, and in the temperate zone the geographical distribution of all flowering plants would be greatly restricted, for at their present northern limits they would be unable, owing to insufficient solar light and heat, to ripen their seeds and reproduce themselves. But owing to the inclination towards the sun of the north pole of the earth, the intensity of the solar heat is so greatly increased, and the duration of the daylight so enormously lengthened in the summer half of the year, that they are able to extend their distribution many degrees farther northwards than would be the case were the earth's axis not so inclined.

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* Notes on Forestry in Finland, by John F. Annand, *Transactions* of the Royal Scottish Arboricultural Society, Vol. XVII, p. 243 (1904), compiled chiefly from *Finland*, by N. C. Frederiksen, formerly Professor of Political Economy in the University of Copenhagen.

As may be seen from the table, published on p. 49, at about the middle of the forest region of Northern Russia and the part of Finland lying between the same parallels of latitude—that is, at approximately 64° N.—at the spring equinox the chemical intensity of the sun's rays is considerably less than one-half of what it is at that time 23½° farther south—that is, at the centre of the Spanish Peninsula. Owing, however to the inclination of the earth's axis from the perpendicular to the ecliptic by this amount, at the summer solstice these forest regions are brought daily into a position in the sun's rays which corresponds to that of the centre of Spain at the equinox, so that at this time both the chemical intensity of the solar rays and the duration of the daylight at 64° N. are practically double what they were at the equinox; in fact, at this time (which is the winter solstice in the southern hemisphere) the equatorial regions receive but one-third more solar heat than these forest regions receive, but approximately one-half of the daylight. Put in another way, by the movement of the earth in its orbit from the vernal equinox to the summer solstice, in the northern hemisphere every point on its surface is carried southwards in space, and therefore in the sun's rays, daily by no less than 1,600 miles, and at the middle of the growing season therefore these forest regions enjoy sunlight of the same chemical intensity as that enjoyed by Spain at the vernal equinox, with practically double the duration of daylight received there at that time, while at the North Pole for some weeks at this time as much, or perhaps more, solar heat is received than at the terrestrial equator.[*] *A. D. Richardson.*

(*To be continued.*)

NURSERY NOTES.

MESSRS. SUTTON AND SONS, READING.

In winter, when flowers are more appreciated than at any other season, some of the brightest members of the floral community may be brought to perfection under glass, and our exhibitions and flower markets at this season prove the great variety obtainable when frost and storms are prevailing in the open.

Some exotics which can be forced into flower in winter require much skill on the part of the cultivator to bring them to perfection, but there are others that are available to all who care to take the little trouble their cultivation entails. For instance, few plants can be flowered with greater ease than the florists' Primula and the Cyclamen. These two flowers are popular with all gardeners,and their popularity is evidence of their worth. If proof were needed of the important place they occupy in indoor gardening, a visit should be made at this season to the nursery of Messrs. Sutton and Sons, at Reading, where the majority of the glasshouses in this large establishment are ablaze with the bright colours of the two plants we have just named. House after house is filled with Primulas and Cyclamens of the choicest varieties and finest strains in cultivation, and the inquisitive may note some plants placed apart or specially marked, in which some variation in the flowers, habit or colour is evident.

Both members of the same great family—the Primulaceae—they have but little resemblance to one another, and it would be hard to say which is the more beautiful or decorative, or which has been the more improved by raisers. Take the Cyclamen, for example; the change brought about in this flower is little short of marvellous. It was introduced to Europe nearly two hundred years ago—one hundred-and-ninety-five to be exact—yet this is not a long period judged by the ages during which the plant has existed in a wild state. The flowers of the introduced plant were white, with a darker ring around the throat, and they were fragrant. The old crimson and white form was described by Miller in 1768 as fragrant, an attribute which most of the modern varieties lack, but Messrs. Sutton and Sons have still in cultivation a fragrant form of this type which is known as "Persicum White"; they also list a large-flowered, sweet-scented strain of mixed colours.

With regard to the original Cyclamen, there appear to have been two forms. The one with pink flowers was the first to be introduced to Europe, in 1731, and was obtained from Syria; the other, a white-flowered form, found in Palestine, is very fragrant.[*] The ring of colour around the base of the corolla gave the opportunity for obtaining colour variation, and perhaps the most striking variety showing the intensification of colouring in the petals is Vulcan, the petals of which are wholly of a deep crimson shade.

The range of colours is now very great, and we have varieties of salmon, salmon-scarlet, salmon-pink, crimson, mauve, sealing-wax red and intermediate shades between these tones. Of all the numerous varieties in the collection none appeal to us more than the salmon types, such as Salmon Pink and Salmon Scarlet. Firefly is a variety of unique colouring, and may best be described as sealing-wax red. Whilst the colour has been intensified in these sorts, it has been entirely eliminated in others, such as in Giant White. In addition to the improvement in the colours, the flowers themselves have been greatly enlarged in size, and whilst probably the smaller-flowered types are of the most perfect form, the old C. latifolium itself being of beautiful symmetry with twisted petals, these giant forms are very imposing; a flower and bud of Giant Shell Pink is reproduced in Fig. 53.

Amongst other changes which the Cyclamen has undergone during the comparatively short period during which it has been in cultivation, is the cresting of the florets, giving rise to the crested varieties, and the fimbrication of the margins of the petals, as seen in the Butterfly types. A plate of these Butterfly Cyclamens, or, as they are sometimes known, Cyclamen Papilio, was published by Mr. Ernst Benary in 1899. Fringing has also developed in some cases on the leaves, and a remarkable example of this leaf fringing was illustrated in *Gard. Chron.*, April 7, 1900, Fig. 70. The flowers of Cyclamen sometimes open like an umbrella, and an example of this abnormal development may be seen in Messrs. Sutton and Sons' collection at the present time.

Apart from the beauty of the flowers, Cyclamens have most ornamental foliage, and these plants are good decorative subjects for the greenhouse and conservatory, even when not in bloom. That such wonderful development has been attained in the Cyclamen is the more remarkable in that it has never been crossed with any other species.

With regard to the Reading Primulas, similarly interesting facts might be told, but these must be deferred for another occasion, beyond stating that improvement is evident in all types of the flower.

HOME CORRESPONDENCE.

Does Frost Kill Insects?—In reply to Mr. G. C. Johnson (p. 68), I do not think that severe weather has any appreciable influence in reducing the insect pests of fruit trees. I can still find woolly aphis alive on my trees, also Apple blossom weevils; and the other day, whilst pruning, I found a caterpillar of the lappet moth extended on a shoot in a most exposed position, and alive. Most of the insects are, of course, in the egg stage, in which they are certainly immune from harm. Even when they are exposed to frost after hatching they do not succumb, unless they are starved. I have found aphides and young caterpillars alive in the blossom clusters of Plums after a blizzard which coated the trees with snow. More reliable evidence than mine was given by Mr. J. G. Blakey in *The Gardeners' Chronicle* of February 14, 1920, as this observer made most painstaking investigations in several seasons. He found that several species of aphides, including the Rose aphis and the leaf-curling aphis of the Apple (Anuraphis roseus), survived frost and snow, even up to 21° of frost. *Market Grower.*

Subsidies for Houses constructed of British or Imperial Timber.—The prospect that in the near future the State will come to the aid of the rural landlord—who at present is unable either to charge an economic rent or to carry out necessary structural alterations—leads me to ask you to give publicity to suggestions recently made by the Essex branch of the Incorporated Society of Auctioneers and Landed Property Agents. Put simply, these are to encourage the Government to grant further subsidies on houses constructed of British or Imperial timber. Doubtless, the same derisive critics who have dubbed the Weir house a "sardine tin," will now sing of "little wooden huts," but the fact remains that a very large number of dwellers in country areas will discuss the suggestion with interest. According to the Ministry of Health's letter to us, dated January 16, "The Minister is prepared to consider sympathetically any proposals from local authorities which seem likely to promote economy or speed of erection in the provision of houses, and in certain instances he has given approval to proposals for the erection of houses constructed mainly of wood." In this connection attention is specially drawn to Section 23 of the Ministry of Health Circular No. 520. In support of the suggestion for more such houses, I would state that there remain in sound, habitable condition a number which were built during a shortage at the time of the Crimean war, seventy years ago. Constructed of seasoned timber, lined internally with asbestos, and built upon concrete foundations, it is believed that a house, comparable in size with the brick or stone dwellings now being erected for the housing of the working classes, would cost approximately £230. Based on this sum, an average subsidy would be about £75. It may further be remarked that in the event of such a suggestion being found practicable on a large scale, the timber industry would be greatly benefited and unemployment in this branch of our trade practically disappear. And first and last, a contribution of considerable magnitude would have been made towards the solving of the centuries' old rural housing problem. May I say, in conclusion, that this society has no direct interest whatever in the matter, but is actuated solely by desire for the welfare of the nation as a whole. *John Stevenson, Secretary, 26a, Finsbury Square, E.C.2.*

Romneya Coulteri.—I can assure Mr. Harrison that, under certain conditions, Romneya Coulteri produces suckers, and young plants spread freely therefrom. The colony I refer to, for such it was, I had under observation for many years. It spread somewhat annoyingly about a very sunny, sloping bank, where the parents overshadowed quantities of Tulipa Clusiana, and other than an occasional digging or mulching received scant attention. The sub-soil was calcareous shale, about fifteen inches below the surface. I mention this fact because it proves or is the sequel of two young root suckers spreading and producing numerous young plants all over a radius of six to eight feet; these could be traced to the roots issuing from the parent plant, which, in such a position, came quickly to the surface. The shoots flowered freely in the case of the strongest growths, and were cut away afterwards. Under such conditions, few, if any, seeds were produced. I must state, however, that the conditions on the Riviera are altogether different to those at home; the plants grow away after the heavy rains, and then come many weeks of brilliantly hot weather such as we seldom experience in England. Romneya Coulteri would grow with greater freedom in favoured places at home, producing more luxuriant foliage and possibly finer flowers, owing to a richer soil and moister climate. R. Coulteri flowers in May and June on the Riviera in the dry period. I have noticed that when shrubs are thriving on shallow soil they throw out side growths or "suckers," and are easily increased thereby. *Joseph Benbow, Dorchester.*

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[*] According to Mädler (*Popular Astronomy*, p. 30), in the course of a year there are at the poles 41 hours more of day (all of which occurs in the summer half), 1,518 hours more of twilight, and 1,559 hours less of night than at the equator.

[*] Sir W. Thiselton Dyer in *Gard. Chron.*, May 15, 1897

Daphne Laureola.—Last year the readers of *The Gardeners' Chronicle* were asked to return this spring to the subject of the presence of scent in the flowers of Daphne Laureola, so here is my experience. It has been growing in this garden for many years in clay soil that has been well-worked and fed in days gone by for the sake of neighbouring Roses. The plant has no objection to the drip from a good-sized Maple that overshadows it. No one knows whence the shrub came from originally—it just appeared. The flowers have no vestige of perfume at any stage, and never have had. The plant always blooms before Daphne Mezereum, which is only now showing colour in the buds. *E. T. M., Ealing, January* 26.

Arauja sericifera.—Regarding Mr. C. Nicholson's note on p. 488, vol. LXXVIII, referring to my previous note on the "Potherb," and "Vapourer" moth, my Potherb moth is Hadena oleracea (La Patagire), as given by Dr. Paul Girod in his *Butterflies of France.* It is extremely abundant from early spring to late autumn along the whole Riviera. Regarding the "Vapourer," of course, I was wrong, and I quoted it because I habitually class these two moths as our worst enemies. My sons obtained several species from the flowers of Arauja during the past two seasons, but fail to identify them now amongst our collection. This season we will carefully note all the species we find, which may be of interest. I venture to suggest that occasional notes on moths and butterflies would be read with great pleasure by very many subscribers to *The Gardeners' Chronicle. F. W. Smith.*

Aucuba japonica variegata.—I am grateful to Mr. Comber for his note (p. 44), concerning the above species. He is quite right in thinking that I had regarded the variegation of the leaves as an indication of sex. How could it be otherwise when all the green shrubs I have examined were female, and all the variegated shrubs, male? The discussion has established the point that such is not the case. We have, in support of this, the experience of Mr. Comber extending over fifty years, and the statement of Mr. Bean in his book *Trees and Shrubs Hardy in the British Isles.* It remains to me now to bring the point established within the range of my own personal observation. For that purpose I hope to make a pilgrimage to Roath Park, Cardiff, when the shrubs which formed the subject of my original note are in bloom It is a matter for regret, I think, that Mr. Comber did not examine the flowers of the variegated Aucubas which he first observed twenty-five years ago. He might then have been able to answer my question: "Is the Spotted Laurel losing its dioecious character?" for he might have found that a bisexual flower preceded the occasional berries. *Geo. H. Copley, N.D.H.*

Perpetual-flowering Carnations.—I agree with Mr. Howard Grace (see p. 51) as to the necessity of obtaining fresh stock of Perpetual-flowering Carnations. With care, one can raise good stock from cuttings that are weak, provided they are procured from plants that are clean and healthy. Whilst it is desirable to propagate these Carnations from strong, clean, healthy specimens, it is not easy to do so in every case, as certain varieties are naturally weak in constitution. The stock under my charge here runs well into four figures and is in a clean and healthy condition. I have propagated many varieties for years in succession and they still retain their good qualities. By careful selection of the plants when in flower, choosing the best for obtaining cuttings, I have never failed to secure good flowering plants. As regards temperature, I find that from 50° to 55° with a corresponding rise during sunshine is suitable, sufficient fire-heat being maintained in cold, damp weather to permit of opening the top and side ventilators, more or less, according to the weather. I never syringe the plants unless forced to do so, as I consider it destroys the "bloom" on the foliage. *W. M. Foulds, Cromlix, Dunblane.*

SOCIETIES.

NATIONAL CHRYSANTHEMUM.

ALTHOUGH there were few members present to hear it the Committee of the National Chrysanthemum Society had the pleasure of reporting a pleasant state of affairs at the Annual General Meeting held at Essex Hall, Strand, on the 1st inst. Mr. E. F. Hawes presided and others present included Mr. D. Ingamells, Mr. H. J. Jones, Mr. B. Carpenter, Mr. J. B. Linford, M. Falkner, Mr. Goddard, Mr. A. R. Crick, Mr. D. B. Crane, Mr. W. Newton, Mr. Runcieman, Mr. Emberson, Mr. M. E. Mills and Mr. Thos. Stevenson.

The Annual Report and Accounts were read by the Secretary, Mr. C. H. Curtis. In the former, reference was made to the fine show held in November last, when the Royal Horticultural Society's hall was very crowded with visitors and £86 6s. 6d. was taken at the doors. The Floral Committee considered the merits of 116 varieties of Chrysanthemums and granted thirty-six First Class Certificates and three Commendations. The loss sustained by the death of Mr. C. Harman Payne received sympathetic mention—"His association with the National Chrysanthemum Society extended over a period of about fifty years, and for thirty-six years he was the Society's foreign corresponding secretary. He was a gifted man, a good speaker, a clever writer, and he possessed the saving grace of humour in a marked degree."

The Committee reported an arrangement to hold a competition for early-flowering Chrysanthemums at Vincent Square on October 5 next, and a proposal to provide larger show boards for Japanese blooms in one of the classes at the show in November next. These will be by way of experiment, and there will be ten inches from centre to centre of the holes for the flowers.

The financial success of the year 1925 was very marked, the turnover being about £100 more than in 1924. Subscriptions amounted to £98 8s.; Floral Committee fees to £5 16s.; and special prizes £92 13s. 6d. The total receipts at the November show, including competitors' fees, tickets sold, and gate money came to £98 4s. The entire, receipts including the balance from 1924, amounted to £407 7s. 10d. The expenses of the November show came to £164 9s., and on this sum £147 3s. 6d. was paid out in prize money. Printing and stationery cost £40 3s. 3d., while hire of rooms, secretary's salary, postages and carriage totalled £62 16s. 6d. The committee placed £50 on deposit, thus bringing the reserve fund to £100, and carried forward a balance of £34 8s. 8d. The balance sheet showed assets amounting to £161 14s. 8d., liabilities £1 1s., leaving a balance of £160 13s. 8d.

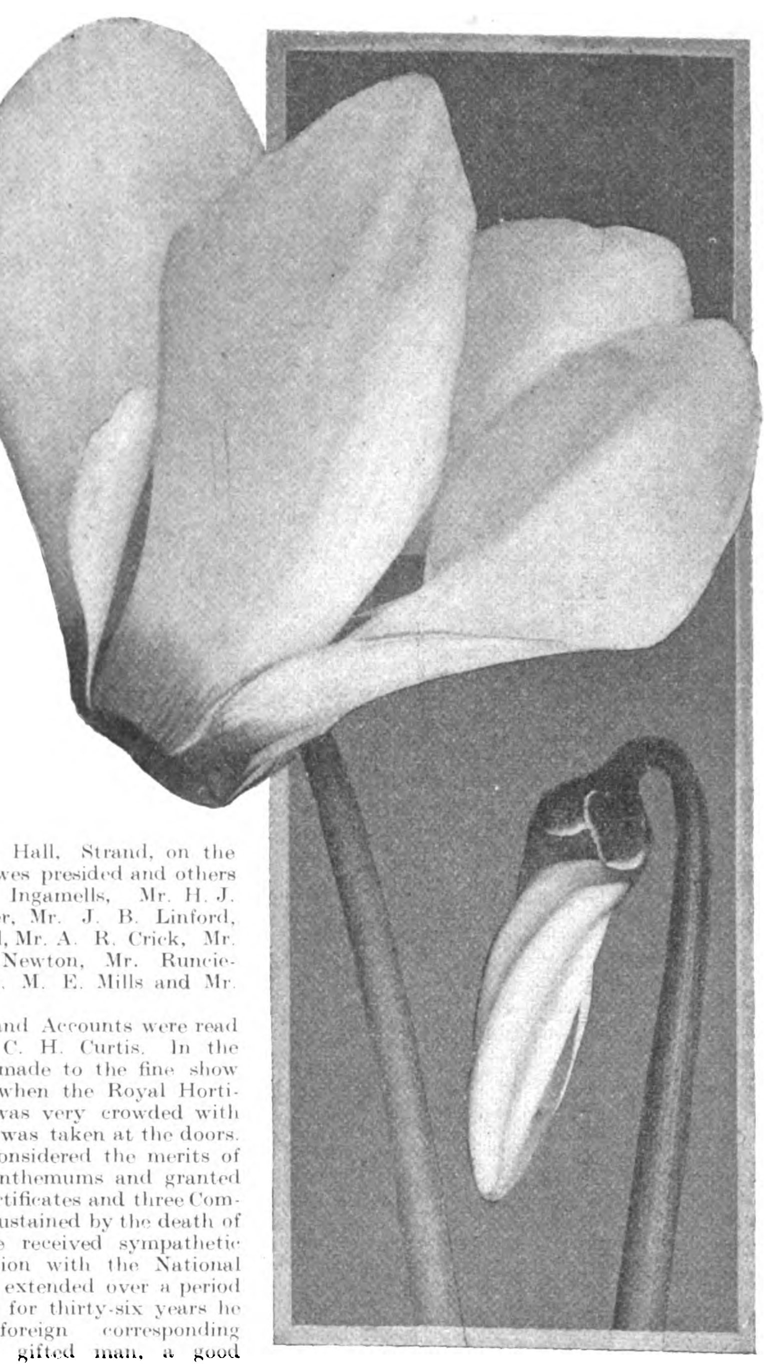

FIG. 53.—CYCLAMEN GIANT SHELL PINK.

(see p. 104)

The Chairman moved the adoption of the report and accounts, which Mr. D. Ingamells seconded; both referred to the excellent position of the Society and made reference to the generous support given by Sir Jeremiah Colman and other friends. The motion was carried. Mr. A. R. Crick proposed and Mr. T. Stevenson seconded a vote of thanks to officers and committee. Mr. Cross moved and Mr. Mills seconded the proposal that special thanks be tendered to Sir Jeremiah Colman, Bt., that the sympathy of the members be sent him relative to his recent accident, and that he be asked to continue as President of the

Society for 1926; the proposal was carried with unanimity and acclamation.

The following officers were re-elected: Chairman of Committee, Mr. E. F. Hawes; Hon. Treasurer and Vice-chairman of Committee, Mr. David Ingamells; Hon. Auditors, Messrs. R. A. Witty and S. Bayly; Secretary and Editor, Mr. Charles H. Curtis. Messrs. A. C. Bartlett, P. A. Cragg, D. B. Crane, A. J. Foster, M. E. Mills, W. Newton, G. Prickett, Mr. A. Robertson, Mr. W. Roots, and Mr. Thos. Stevenson, who retire by rotation, were re-elected members of Committee to retire in 1929, and Capt. Wright and Mr. A. R. Crick were elected to fill vacancies arising. The members voted £5 to Mrs. Curtis as a small token of their appreciation of services rendered at the November Show.

At the conclusion of the general business Mr F. Stevenson gave a short informal talk on his visit to the United States and stated that the cultivation of Chrysanthemums was carried out over there on entirely different lines to ours. In most places the plants were struck late, and planted late on benches in three or four inches of soil, and often not more than six inches apart. They were grown under much warmer conditions than in this country, but they produced fine blooms which, however, had fewer florets than those grown in England. Mr. Stevenson's observations were greatly appreciated and it was agreed that a paper or talk on some relevant subject would greatly add to the interest of the annual meeting and probably induce others to attend.

A vote of thanks to the Chairman concluded the proceedings.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.

A GOOD muster of supporters of this useful charity attended the annual meeting and election of new beneficiaries, held at Simpson's, 101, Strand, on Tuesday, the 26th ult. In the unavoidable absence of Mr. Leonard Sutton, Mr. A. J. Wood was elected to preside. Those present included Mr. J. F. McLeod, Mr. D. Ingamells, Mr. E. G. Monro, Mr. Noel Sutton, Mr. P. White, Mr. P. C. M. Veitch, Mr. Chas. H. Curtis, Mr. J. Bullock, Mr. A. Dye, Mr. H. G. Cox, Mr. James Hudson, Mr. W. A. Bilney, Mr. P. R. Barr, Mr. J. B. Lintord, Mr. Bernard Crisp, Mr. A. Dawkins and Mr. R. F. Felton.

Following the notice of meeting and the reading of the minutes of the previous annual general meeting, the Secretary, Mr. George J. Ingram, read the annual report of the committee and presented the audited accounts for 1925. From the former we make the following extracts.

EXTRACTS FROM COMMITTEES' REPORT.

BEFORE presenting their annual statement, the Committee desire to place on record an expression of their heartfelt sorrow and respectful sympathy at the loss they and the Institution have sustained by the lamented death of Queen Alexandra. Her late Majesty had been a beloved patroness of the charity for forty years, and had always evinced a gracious interest in its activities and needs besides being a liberal contributor to the funds of the Institution. Her late Majesty was pleased each year to allocate a portion of the proceeds derived from "Alexandra Day" to its funds' behalf, for which the Committee have always been most grateful.

The Committee have again to express their cordial thanks for the practical support they have continued to receive which has enabled them to maintain the work of assisting both permanently and temporarily a large number of poor old and distressed men and women who, in their day, did so much in ministering to the pleasures and necessities of all lovers of gardening. During the past year, several annuitants have passed away, of whom two left widows, and their cases having been considered and found deserving, they were immediately placed on the funds for the widows' allowance in accordance with Rule III. 13.

There are fifty-one approved candidates for the election this day, and the Committee recommend that twenty of these be elected. They regret being unable, in view of the financial uncertainties at the present time, to recommend a larger number. Fortunately, the unsuccessful candidates who have been subscribers will be assisted whilst awaiting election by grants from the Victorian Era Fund, in amounts *pro rata* to the length of time they had subscribed, and others will be helped according to their need from the Good Samaritan Fund. Both these funds prove to be of incalculable value in assisting distressed cases. Although the annual income only from each fund is available for distribution, the Committee were able to assist fifty-one necessitous persons during the past year, and as the applications for temporary help are ever increasing, any special donations for either fund will be gratefully received.

The Eightieth Annual Festival Dinner on behalf of the fund was held, by the kind permission of the Master and Court of Assistant of the Worshipful Company of Grocers, in their beautiful hall, on July 2. The Rt. Hon. Sir Austen Chamberlain, K.G., presided, and eloquently advocated the claims of the Institution, which resulted in a substantial amount being raised in aid of the work, and the Committee desire to express their gratitude to Sir Austen Chamberlain for his great kindness and material aid to the Institution. They also offer their warmest thanks to the Worshipful Company of Grocers for the use of their hall and for the generous donation to the Chairman's list in aid of the funds. Their cordial thanks are also given to those gentlemen who acted as stewards; to the donors of flowers, etc.; to the Horticultural Press, and to others who in any way contributed to the success of the Festival.

The Committee acknowledge with grateful and respectful thanks the renewed annual subscriptions from His Majesty the King (Patron) and His Royal Highness the Prince of Wales (President). Likewise to the following generous donors, viz.:—The Viscount Bearsted, the Lord Glendyne, Sir Jeremiah Colman, Bart.; Mr. Reginald Cory; Messrs. Rothschild and Son; Messrs. Hurst and Son; Messrs. Sutton and Sons; Major E. G. and Messrs. Geo. and B. J. Monro (including a further donation of £500 to the Geo. Monro Memorial Fund); The Royal Horticultural Society; Mr. Leonard Sutton, C.B.E; Messrs. Waterer, Sons and Crisp; Mr. A. J. Wood; Mr. F. J. Chittenden, V.M.H.; Mr. P. C. M. Veitch, V.M.H.; Mr. Edward White, V.M.H.; Mr. H. G. Alexander; and Mr. Peter R. Barr; and the Committee are deeply indebted to the Rt. Hon. Viscount St. Cyres; the Rt. Hon. Earl Beauchamp; the Rt. Hon. Lord Northbourne; the Lady Battersea; Mr. C. W. Dyson Perrins, J.P., and Mr. Roger Corbett, J.P., for so kindly again allowing their beautiful gardens to be opened to the public for the benefit of the Institution.

It is desired to acknowledge the kindness of the promoters and organisers of concerts and other functions, amongst whom may be specially mentioned: Mr. Thomas Cook, Sandringham; Mr. W. J. Auton, Woking; Mr. G. Wilson Fox, Wisley; The Geo. Monro, concert committee; Worcester Auxiliary Branch; Liverpool Auxiliary Branch, and the Altrincham and District Gardeners' Improvement Society. Grateful thanks are also tendered to Messrs. Ralph Bond, Veitch and Bilney (hon. solicitors), and to Messrs. Geo. Cobley, Kay and Co. (chartered accountants), for their kind and gratuitous services. To the Honorary Officers and the Committees of auxiliaries at Bristol, Worcester, Exeter, Reading and Liverpool, the Committee express their gratitude for the continued practical and valuable services so keenly appreciated.

With the deepest regret the Committee have to report the loss by death of many supporters during the past year. Amongst whom were:—The Lord Barrymore; Mr. Arthur W. Sutton, F.L.S., V.M.H. (for many years a valued member of Committee and a generous subscriber); Mr. Heber Mardon; Mr. A. B. Hollinsworth; Mr. Percival Etheridge; Mr. Whitpaine Nutting; Mr. John Heal, V.M.H.; and Mr. George Bradley. These warm-hearted friends and liberal contributors will be greatly missed.

A special general meeting of subscribers was held on October 20, 1925, for the purpose of appointing a new Trustee of the Institution, when Mr. Bernard Woodward Crisp was unanimously elected.

In concluding this brief summary of the work, the Committee again thankfully acknowledge the kind and liberal support which has hitherto been given to this National Horticultural Charity for a period of eighty-six years, and for a continuance of which they very earnestly plead, so that the good work may be maintained with undiminished effort.

LEONARD SUTTON,
Chairman of Committee.

GEORGE J. INGRAM,
Secretary.

The Chairman moved the adoption of the report and accounts, and in so doing paid tribute to the work done for the charity by Mr. Leonard Sutton, who, owing to a prior and important engagement could not be present, but whom, they were glad to know, had now recovered from his illness. Mr. P. White seconded the motion, and it was carried.

Mr. Edward Sherwood was unanimously elected Treasurer on the motion of Mr. Wood, and Mr. McLeod. In proposing the reappointment of Mr. George J. Ingram as Secretary, Mr. E. G. Monro said that thirty-five years ago, almost to a day, his father proposed Mr. Ingram as secretary with the observation that the members would never regret the appointment. His father was right, and they felt that Mr. Ingram was unusually well-fitted for the position. Mr. Felton seconded the proposal, and it was carried with applause.

Mr. Curtis proposed the re-election of Mr. H. G. Alexander, Mr. W. Atkinson, Mr. A. F. Barnes, Mr. Peter R. Barr, Mr. Peter Blair, Mr. E. A. Bunyard, Mr. R. J. Cuthbert, Major E. G. Monro and Mr. H. W. W. Nutting, as members of committee, and the appointment of Mr. Charles H. Cook, Royal Gardens, Windsor, in place of Mr. C. R. Fielder, retired. This was seconded by Mr. P. C. M. Veitch and carried. On the motion of Mr. Hudson and Mr. Bernard Crisp, the arbitrators were re-elected. Mr. Veitch moved and Mr. Bullock seconded a vote of thanks to Mr. Thomas Manning, Mr. P. R. Barr and Messrs. George Cobley, Kay and Co., as auditors, and their re-election.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION GENERAL FUND.

FOR THE YEAR ENDED DECEMBER 31, 1924.

RECEIPTS.	£	s.	d.	£	s.	d.
To Balance with Bankers, January 1, 1925	1,576	2	11			
Balance with Bankers on Deposit January 1, 1925 ...	2,500	0	0			
Balance with Secretary, January 1, 1925	26	18	1	4,103	1	0
Annual Subscriptions	1,147	18	3			
Donations and Legacies ...	4,638	9	3			
Schröder Annuity	20	0	0			
Dividends and Interest ...	1,137	14	10			
Income Tax Refunded ...	152	13	1	7,096	15	5
Geo. Monro Memorial Fund, Further Contribution, making £2,520				1,420	0	0
				£12,619	16	5

PAYMENTS.				£	s.	d.	£	s.	d.
By Annuities and Gratuities ...							4,190	6	8
Rent, Fuel, Lighting, and Salaries of Secretary and Clerk				681	19	0			
Expenses of Annual Meeting and Election				5	11	3			
Expenses of Special General Meeting				1	11	0			
Printing and Stationery ...	166	17	8						
Less Advertisements	38	2	0	128	15	8			
Advertising—Fry's Charities				5	5	0			
Cheque Books				17	15	0			
Postages: Report, Polling Papers, Appeals and Ordinary				55	14	9			
Telephone Charges				11	13	10			
Carriage, Telegrams, Typing, &c.				18	13	4	926	18	10
Grant to Secretary for Special Services							200	0	0
Geo. Monro Memorial Fund Purchase of War Loan 5% 1929/47							500	0	0
Balance with Bankers, December 31, 1925 ...				1,583	7	0*			
Balance with Bankers on Deposit December 31, 1925				5,200	0	0†			
Balance with Secretary, December 31, 1925				19	3	11	6,802	10	11
							£12,619	16	5

* £1,250 is required to meet the Quarterly payments due on December 31, 1925.

† Includes (*a*) £920 for investment "Geo. Monro Memorial Fund."
(*b*) part for investment in commemoration of H.R.H. Prince of Wales' Presidency at Festival 1924.

We have examined the Accounts of Receipts and Payments with the Books and Vouchers, and we certify that, to the best of our information, they are correct. We have also verified the investments and bank balances of the Institution.

(Signed) GEORGE COBLEY KAY & CO.
Chartered Accountants.

Messrs. E. G. Monro, H. G. Cox, P. White and D. Ingamells were appointed scrutineers of the ballot, and the meeting was then adjourned until the declaration of the poll.

The large number of votes recorded gave the scrutineers a great deal of work, and they could not complete their task until past five o'clock. The result of the poll was published on p. 73 of our issue of January 30.

After the declaration of the poll Mr. R. F. Felton asked the Committee to accept two-thirds of the profits of the sales during the second, third and fourth days of the opening of his new flower shop at Devonshire House, Piccadilly. He proposed to divide the remaining one-third between the Royal Gardeners' Orphan Fund and the Blind Gardeners. The Chairman said the matter would come before the Committee and he felt sure Mr. Felton's kind offer would be accepted.

Thanks to the scrutineers and to Mr. A. J. Wood for presiding, moved by Mr. W. A. Bilney, brought the proceedings to a close.

BRITISH FLORISTS' FEDERATION.

ABOUT three dozen members met under the Presidency of Mr. A. W. Ladds on the occasion of the annual general meeting of the British Florists' Federation, at the Holborn Restaurant, during the afternoon of January 29. Several members brought friends with them to listen to the discussion after the general business, and five of these subsequently signified their intention of becoming members.

The report of the Committee and the audited accounts for 1925 were presented formally, and as they had been circulated to members they were taken as read.

From the former we gather that representatives of the B.F.F. took their part in the investigations into the subject of the economic heating of greenhouses, in conjunction with representatives of the Lea Valley Growers, and that the Federation's share of the costs came to £35, this sum being generously contributed by members who were specially interested. The Federation was also represented at Haarlem at the annual conference of the Fédération Horticole Professionnelle Internationale, and did their best to obtain the removal of the present duty imposed by France on British flowers, urging that there was no tax on French flowers imported into Great Britain. The work of the Market Committee and the Market Floral Committee was reviewed and we were glad to find that the latter committee is very sparing with its awards. The Committee emphasised the need for maintaining a strong association in the interests of the flower trade.

The following extract briefly sets forth the work accomplished :—"The Committee would remind growers especially that during the latter part of the war period the Federation was able to preserve the industry from extinction by meeting the Government's proposals with counter-proposals, and by promising the hearty co-operation of growers in the production of food, provided the cut flower and pot plant industry could be maintained in such a degree as would enable those engaged in it to re-establish themselves quickly so soon as circumstances permitted. In regard to the transport of flowers and plants by rail, the Federation was mainly instrumental in obtaining conditions and rates which proved of immense value to the whole horticultural trade. Further, the Federation secured better conditions for those who sell flowers and plants in Covent Garden Flower Market—the great distributing centre—and by this means effected a saving of many pounds sterling per year by the standholders. The Federation also suggested the present site of the Foreign Flower Market, and, later, used its influence successfully to secure easier terms for the standholders in this section. These are a few items of the work done, and they are sufficient to show that the Federation has amply justified its existence and deserves greater support. It is far better that the cut flower industry should have a strongly supported Federation, in being, to meet and resolve the difficulties as they arise—and there are several that may arise in the near future—than have to reconstruct one hastily in cases of dire need and emergency. The officers and committee who give time and money to help their fellows, have a right to expect more support than they receive at present. That support can be given by the prompt payment of annual subscriptions and by an earnest effort to obtain new members."

The accounts showed a turnover of £229 18s., the income from subscriptions amounting to £191 8s. 6d. The balance carried forward was £2 18s. 10d.

Mr. Ladds, in moving the adoption of the report and accounts, referred to his year of office as a somewhat lean one, and regretted there had been nothing to fight about, nevertheless, there were prospects of difficulties arising, therefore there was need for the Federation and need for more members. Mr. Engelmann seconded the motion and it was carried. On the proposal of Mr. Ward, seconded by Mr. J. Page, the officers and committee were thanked for their services. The next business was the election of President for 1926, and Mr. G. Shawyer proposed Mr. David Ingamells for that position, pointing out that during three years Mr. Ingamells had refused that office because he did not want members to feel the Federation was solely a Covent Garden affair. He referred to Mr. Ingamell's work in various ways, and especially in connection with Covent Garden, and he hoped the election would be unanimous. Mr. E. W. Wallace seconded the proposal, and spoke very highly of Mr. Ingamells' ability and usefulness to members. The proposal was adopted with applause, and Mr. Ladds then vacated the chair in favour of the new president, who at once proposed a vote of thanks to the retiring president a vote which was accorded with great heartiness.

Mr. Windle proposed and Mr. Brookhouse seconded the motion for the re-election of Messrs. C. Harding, H. G. Mount, George Monro, George Shawyer, G. W. Leak, and H. T. Mason, due to retire by rotation, and the appointment of Mr. F. Segar to fill a vacancy caused by the retirement of his father. This was agreed. The appointment of Messrs. George Cobley, Kay and Co., Southampton Street, W.C., as hon. auditors, and thanks to them for past services, concluded the general business.

The President then called upon Mr. J. Windle to open a discussion on Flower Imports. Mr. Windle said he brought the matter forward in the interest of British growers who, in his opinion, were being crowded out by the dumping of foreign flowers. America had placed an embargo on imported plants, and Holland was increasing her exports of flowers to this country ; not only did she sell bulbs but she exported flowers also. Germany had put up a big tariff wall against flower and plant imports, and he gave figures, subsequently corrected by Mr. Englemann, which showed that she was imposing a duty of 10/- per cwt. on bulbs, 50/- per cwt. on cut flowers ; 12/6 to 37/6 on foliage ; 10/- on pot plants ; 12/6 on plants without soil ; 20/- per cwt. on Rose trees ; and 15/- per cwt. on other plants. He did not blame the German Government for imposing these duties, but he considered our own Government should also impose duties to protect the home grower. France, which he designated as the "dumper in chief," exported to this country flowers and plants to the value of £200,044 in 1924, which came in free of duty, and yet France imposed a duty on choice flowers exported to it from England. He concluded by stating that it must be obvious that this country cannot absorb the heavy supplies of flowers that are coming from France and Holland without doing great injury to the British grower, who is compelled to pay standard wages with limited hours of labour, and he advised the trade to apply for protection under the Safeguarding of Industries Act, "to grow British, sell British and buy British."

A very interesting discussion followed in which Mr. George Shawyer, Mr. F. W. Ladds, Mr. W. H. Page, Mr. R. H. Page, Mr. Jolis, Mr. Felton, Mr. Engelmann, Mr. H. T. Mason and others joined. There was, of course, a diversity of opinion on the subject, but it was pointed out that Holland purchased woollen and steel goods from us and that we ourselves were the largest exporters in the world. Eventually the subject was remitted to the general committee for further consideration and for action as seemed desirable, but the general opinion seemed to be that the imports of French flowers during winter served a very useful purpose, and kept the florists' businesses alive.

A hearty vote of thanks was accorded to Mr. Windle for opening the discussion, and after some observations on the subject of refrigeration of flowers, the proceedings closed with a vote of thanks to the president.

Later in the evening a company of nearly ninety members and friends, including ladies, dined together under the presidency of Mr. David Ingamells. The tables were brightly decorated with Golden Spur Daffodils.

The programme included a number of musical items, and the following toasts :—"The British Florists' Federation," proposed by Mr. A. A. Fincham, who made a capital speech, eulogising the work of the Federation, and responded to by the President ; "The Men, the Market and the Flowers," proposed by Mr. W. E. Wallace and responded to humorously by Mr. F. W. Ladds ; "The Ladies," proposed by Mr. H. Miles, junr., and responded to by Mrs. W. E. Wallace ; "The Visitors," proposed by Mr. Thos. Stevenson, to which Mr. H. Mason replied. "The President," proposed by Mr. W. Robins, and accorded musical honours, concluded a very pleasant evening's entertainment that was much appreciated after the business of the afternoon.

Obituary.

James Whytock, V.M.H.—The death is announced of Mr. James Whytock who was formerly gardener to the Duke of Buccleugh at Dalkeith and who retired in 1921 after twenty-one years service. Deceased occupied a foremost place in the horticultural world. For a number of years he was President of the Scottish Agricultural Society and in 1914 he was presented by the Royal Horticultural Society with the Victoria Medal and was made a fellow of that institution. For four years he was President of the Botanical Society of Edinburgh, in which city he resided until his demise on Sunday last.

Edwin Sidney Wiles.—Mr. E. S. Wiles, who passed away on January 21, in his seventy-seventh year, was gardener at Edgcote Park, Banbury, Oxon, for thirteen years (1878 to 1891), and during that time became a successful raiser and exhibitor of Potatos. It was while at Edgcote Park that he brought out the variety Edgcote Purple and other noted sorts. After leaving Edgcote Park he carried on a business at Oxford for a few years, and later went as gardener to the Hon. Evelyn Hubbard, The Rookery, Downe, Kent. He was in charge of those gardens for thirteen years, and during that time continued his activities with Potatos and other vegetables. After the sale of the Rookery he moved to Knowle Hill Park, Cobham, Surrey, and for three years had charge of the gardens there, until the sale of the property. His next appointment was as gardener to the Branksome Tower Hotel, Ltd., Bournemouth, where he remained five years before becoming gardener at The Dene, Totton, Hampshire. Here he carried out his duties for three years, when he met with an accident which deprived him of his sight. He then went to reside at Upper Parkstone, Dorset. He learned to read books printed in Braille, and gained a certificate from the National Institute for the Blind. He maintained his cheerfulness for five years under great difficulties. Death was due to heart failure. Mr. Wiles leaves a widow, one son and two daughters to mourn his loss.

MARKETS.

COVENT GARDEN, Tuesday February 2nd, 1926.

Fruit: Wholesale Average Prices.

	s. d. s. d.
Apples, English, per ¼-sieve—	
—Cox's, special	12 0-15 0
—best	6 0-10 0
—others	3 0—4 0
Apples, Cooking—	
—Bramley's Seedling	4 0 8 0
—Lane's Prince Albert	4 0—6 0
Apples, American	
—Jonathan	12 0-15 0
—Californian	12 0-15 0
—Oregon Newtown	15 0-18 0
—Spitzenberg	12 0-15 0
—Winesap	11 0-14 0
Apples Nova Scotia—	
—Fallawater	15 0-21 0
—Russet	26 0-35 0
—Stark	12 0-20 0
—Baldwin	12 6-22 0
Bananas	14 0-25 0
Chestnuts, Italian, per bag	18 0-26 0
Dates (Tunis), per doz. cartons	3 0—5 0
Grapes, per lb—	
—Colmar	2 6—4 0
—Almerian, per barrel	15 0-30 0
Grapes, Belgian—	
—Muscats	5 0—8 0
—Black	1 6—2 6
—Gros Colmar	1 6—2 6
Grape Fruit,	
—Jamaica	20 0-25 0
—Isle of Pines	22 6-25 0
—Florida	27 6-32 6
Lemons, Messina, per box	10 0-30 0
—Malaga	18 0-22 0
Oranges—	
—Denia	12 6-25 0
—Jamaica	12 0-16 0
—Murcia	12 0-20 0
—Malaga	18 0-20 0
—Jaffa	18 0-20 0
—Palermo Bitters	11 6-12 6
—Sevilles	14 0-20 0
Pines	2 6—5 0
Pears, Californian—	
—Beurré D'Anjou, case	20 0-24 0
—Winter Nelis, ½ case	14 0-15 0
South African fruits—	
—Nectarines	6 0-9 0
—Peaches, per box	4 0—8 0
—Pears	4 0—7 0
—Plums	5 0—8 0
—Others	4 0—5 0
S. A. Pears	3 0—5 0

REMARKS.—The volume of business being transacted is extremely good for the time of year. Imports of fruits from South Africa, consisting of Peaches, Nectarines, Pears and Plums, are assuming large proportions; the various subjects are arriving in good condition and meeting a good demand. The Apple trade is moderately good, with home-grown Apples in demand, but only if of first grade. Hothouse Grapes are still available, mainly from Belgium. Grape Fruits are fairly plentiful and quoted at reasonable prices. Oranges show little fluctuation in value as compared with last week. French Beans are inquired for, although they are very dear. Asparagus, principally from France, has been selling very well, but at the time of writing there is an easier tendency. English Asparagus (forced) has also improved in price. New Potatos from Guernsey are selling well, but although there is a slight improvement in the trade for new Potatos from the Azores, Canary Islands and Algeria, the demand is still quiet. Mushrooms are a steady business, with supplies showing a gradual increase. Forced Rhubarb has sold slowly, even at low figures; some improvement is looked for in this section. Beans from Madeira arrived in good condition and have sold well. Cauliflowers from northern France are a firm trade, as also are Lettuces from the south of France. Tomatos from the Canary Islands have shown a better business, with higher prices. Bananas from the same source are also a fair trade. Green vegetables are not cheap. Fair supplies of old Potatos are offered, good samples meeting a fair enquiry.

Cut Flowers, etc.: Average Wholesale Prices.

	s. d. s. d.
Adiantum decorum, doz. bun.	12 0-15 0
cuneatum, per doz. bun.	10 0-12 0
Arums (Richardias) per doz.	8 0-10 0
Asparagus plumosus, per bun., long trails, 6's,	2 0-3 0
med. sprays	1 6-2 6
short	0 9-1 3
—Sprengeri, bun long sprays	1 6-2 0
med. „	1 0-1 6
short „	0 4-1 0
Azalea, white, per doz. bun.	4 0 5 0
Bouvardia, white, per doz. bun.	15 0-18 0
Camellias, white per box, 12's	2 6-3 6
Carnations, per doz. blooms	3 0-4 0
Chrysanthemums white blooms, per doz.	4 0-7 0
—white spray per doz. bun	30 0-36 0
yellow, spray per doz. bun.	36 0-42 0
—pink, spray, per doz. bun.	27 0-36 0
bronze, spray, per doz. bun.	30 0-36 0
Croton leaves per doz.	1 9-2 6
Daffodils, single, per doz. bun.	10 0-15 0
Fern, French, per doz. bun.	10 0-12 0
Forget-me-not, per doz. bun.	9 0—12 0
Freesia, white, per doz. bun.	2 6—4 6
French Flowers—	
—Acacia (Mimosa) per doz. bun.	15 0-18 0
—Anemone, De Caen, per doz. bun.	12 0-15 0
—Eucalyptus per pad	4 0—5 0
—Marguerites, yellow, per doz. bun.	4 0—4 6
—Narcissus, Paper White, per doz. bun.	3 0—4 0
—Narcissus Soliel d'Or, per doz. bun.	4 0—6 0
—Parma Violets, per bun.	3 0—4 0
—Ranunculus, scarlet, per doz. bun.	8 0-10 0
—carmine, per doz. bun.	7 0—8 0
—orange, per doz. bun.	24 0-30 0
Heather, white, per doz. bun.	10 0-12 0
pink, per doz. bun.	9 0-12 0
Hyacinths, Roman, per doz. bun., 12's	15 0-18 0
—large white, per doz. spikes	3 0—4 0
Iris tingitana, per doz. blooms	4 0—5 0
Lilac, white per doz. sprays	6 0—7 0
Lilium longiflorum long, per doz.	6 0—8 0
—speciosum album, long, per doz.	— —
—short, per doz.	3 6—4 6
—speciosum rubrum, long, per doz. blooms	5 0—6 0
—short, doz. blooms	3 0—3 6
Lily-of-the-Valley, per doz. bun.	18 0-24 0
Narcissus Grand Primo, per doz. bun.	6 0—7 0
—Narcissus ornatus, per doz. bun.	12 0-15 0
Orchids, per doz.	
—Cattleyas	24 0-30 0
—Cypripediums	5 0—7 0
Prunus triloba, per doz. bun.	2 6—3 6
Roses, per doz. blooms—	
—Madame Butterfly	— —
Smilax, per doz. trails	2 6—3 0
Snowdrops, per doz. bun.	3 0—5 0
Stock, double white, per doz. bun.	4 0—5 0
Tulips, single—	
—white	18 0-24 0
—yellow	24 0-30 0
—scarlet	24 0-30 0
—pink	24 0-30 0
—terra cotta	24 0-30 0
—W. Copland, per doz. bun.	24 0-36 0
Tulips, double—	
—Couronne d'or, per doz. bun.	30 0-36 0
—Murillo, per doz. bun.	24 0-30 0
Violets	4 0—6 0

REMARKS.—Daffodils from home growers are still retaining their prices owing to a steady supply. Golden Spur is the most plentiful. Double Van Zion is receiving more attention from buyers owing to the fine quality of the blooms. A few princeps and King Alfred are the newest arrivals. Almost daily consignments of these blooms are being received from the Channel Islands, also increased supplies of Narcissus Grand Primo, N. Soliel d'Or and Scilly White, Anemone St. Brigid, Anemone fulgens, Freesias, Violets and Snowdrops. Tulips have increased in quantity, both double and single varieties, and their quality is exceptionally good. Large consignments of these blooms are coming from Holland, the quantity exceeding the present demand. Chrysanthemums are gradually decreasing in numbers, and their prices are firmer; a few bronze and yellow blooms are in moderate demand. Of Roses, the only sorts to be recommended are a few blooms of Columbia and Premier at 15/- and 18/- per dozen. A few blooms of Richmond, of the new crop, came to hand last week, but the stems were very short. Carnations are good in quality and cheaper owing to the poor demand. There is a glut of English Violets, whilst Snowdrops are increasing in quantity daily. The consignments of French flowers have been heavier since Friday last, and prices are on the down grade. Anemones, Ranunculus and Marguerites, which were greatly affected by the severe weather, are now recovering in quality. There is a good demand for these blooms. Acacia (Mimosa), Narcissus Paper White and Single Violets are being despatched to the provinces in large quantities.

GLASGOW.

The cut flower market was featureless during the past week. Business was on a moderate scale, and movements in prices were mostly in a downward direction. Values in Tulips were all in favour of buyers, and work out as follows:—Bartigon and William Pitt, 1/6 to 2/3 for 6's; Ibis, 1/2 to 1/5; Couronne d'Or, 1/- to 1/4; Rosini and Rose Tendre, 1/4 to 1/6; W. Copland, Tea Rose and Flamingo, 1/- to 1/2; Vermilion Brilliant, 10d. to 1/-; Prince of Austria and Murillo, 9d. to 1/-; Thomas Moore and La Reine, 8d. to 1/-. Daffodils were also cheaper at 10d. to 1/- for Golden Spurs, 8d. to 10d. for princeps, and Van Sion, and 6d. to 8d. for ornatus. White Hyacinths made 8d. to 10d., and pink and blue, 9d. to 1/-. Special Narcissi were worth 4/- to 5/- per dozen, and ordinary 2/- to 3/-. Madame Butterfly Roses realised from 11/- to 14/- per dozen, while Carnations were cheaper at 3/6 to 5/-. Lilium longiflorum (Harrissii) advanced to 12/-, and Arums ranged from 7/- to 9/-. Lily-of-the-Valley sold at from 1/6 to 2/- per bunch; Mimosa, special, 6/- to 8/- per cane, ordinary, 4/- to 6/-; Smilax, 1/- to 1/6 per bunch, and Asparagus from 6d. to 1/-.

In the fruit market Jaffa Oranges further advanced to 17/- and 18/6 per case, while Valencia counts remained at former quotations. American Apples were also quietly steady at last week's prices. South African fruits were plentiful and cheaper, Peaches making from 4/6 to 6/- per tray; Nectarines, 5/- to 7/-; Plums, 5/- to 7/-; and Williams's Bon Chretien and Clapp's Favourite Pears, 5/- to 7/-. English Gros Colmar Grapes averaged 3/- to 3/6 per lb.; Scotch, 2/6 to 3/6; and Dutch, 1/8 to 2/6. Pines were worth 5/- each; and Rhubarb declined about 4/- per cwt. to 36/- and 38/-.

Vegetable prices moved within narrow limits. French Beans making from 4/- to 5/6 per box; Seakale, 2/3 to 2/9; Sprue, 1/- to 1/3; Endive, 3/- to 4/- per dozen. Lettuces, 1/6 to 1/9, and out-door grown Lettuces, 3/6 to 4/-.

GARDENING APPOINTMENTS.

Mr. A. Blake, previously Gardener to COL. WILDE, Danes Hill Gardens, Hertford, as Gardener to the same gentleman at Shenley Hill Gardens, Shenley, near Barnet, Hertfordshire.

Mr. James Cooke, for the past three years Gardener to R. V. BERKELEY, Esq., Spetchley Park, Worcester, as Gardener to the RIGHT HON. LORD BIDDULPH, Ledbury Park, Ledbury, Herefordshire.

Mr. F. Streeter, previously successor to the late Mr. F. BEDFORD at Straffan House Gardens, Co. Kildare, and recently at Wormley Bury, Broxbourne, as Gardener to the RT. HON. LORD LECONFIELDS Petworth Park, Sussex, commencing his new duties on March 25. (Thanks for 4/5 for R.G.O.F. Box.—EDS.).

ANSWERS TO CORRESPONDENTS.

CYPRIPEDIUM INSIGNE.—*Mack*. The proper time to pot plants of Cypripedium insigne is after they have flowered, and so soon as new growth commences. The pots should be well-drained, as this Orchid needs abundance of water when well-rooted and growing freely. A suitable compost consists of two parts moderately heavy fibrous loam and one-part of peat or half-decayed Oak or Beech leaves. To these materials should be added a little broken charcoal and sand, or finely crushed potsherds. Firm, but not hard, potting is desirable, and when potting is finished, the compost should be slightly below the edge of the rim of the pot, so as to allow space for water to be applied. The temperature for Cypripedium insigne should not fall below 40° in winter, otherwise a warm greenhouse temperature with plenty of atmospheric moisture will suit it.

DISEASED BULBS.—*T. W.* The small worms are the larvae of a fly, probably of a Bibionid. These flies are saprophytic and have not caused the rotting of the bulbs, which is probably due to the mites with which they are abundantly infested. It is probable, though not certain, that the mites were present in the bulbs when purchased.

EVERGREEN CLIMBING SHRUBS.—*F. F. W.* For a north wall Viburnum Tinus, Lonicera japonica, Euonymus radicans and Jasminum nudiflorum. The last named is not an evergreen, but the very numerous green twigs make it equal to an evergreen in value, and the plant is by far the best flowering climber for a north wall of a London garden. For a south wall, Escallonia langleyensis, Osmanthus Delavayi, Garrya elliptica, Ceanothus thyrsiflorus, Trachelospermum japonicum, and Choisya ternata may be selected.

HARES AND FRUIT TREES.—*A. F.* It is bad for trees, especially young trees, to have the bark covered with grease. We should be inclined to wipe off as much as possible and then wash the stems with warm water with some washing soda in it. The portions gnawed by the hare should then be dressed with grafting wax or painted with white lead paint or even tar.

NAMES OF PLANTS.—*L. W.* 1, Coelogyne cristata; 2, Chimonanthus fragrans. *G. K. P.* Sequoia sempervirens.

THE CHINKERICHEE.—*W. C. N., Middleburg.* The Chinkerichee is Ornithogalum thyrsoides a member of the Liliaceae. The flowers grow wild in South Africa, and are remarkable for their longevity.

WIRE NETTING FOR FRUIT TREES. *F. R. O.* For normal conditions, wire netting of three-quarters-of-an-inch mesh and No. 19 gauge is the most serviceable size to use in the construction of a bird-proof screen. If the structure is on a large scale, with supporting posts at wide intervals, it is preferable to use No. 18 gauge. The permanent exclusion of birds from fruit plantations is a distinct disadvantage and a more satisfactory means of obtaining protection when needed is to construct the sides of the area to be protected with wire netting, leaving the top open. If stout wires are run across the area overhead, in each direction, ordinary tarred netting may then be placed in position when the fruits are ripening. Should it be considered desirable to entirely enclose the area with wire netting the structure should be so arranged that occasional portions may be removed when the fruiting season is over.

Communications Received.—A. R.—W. C.—J. C.—W. T.—L. C.—T. P. McT.—F. J. C.—K. M. H.—C. C. N.—C. G. A.—Mrs. W.—F. S.—E. M. B.—W. A. J.

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THE
Gardeners' Chronicle

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AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 39.5.

ACTUAL TEMPERATURE —
The Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, February 10, 10 a.m. Bar. 29.9. Temp. 38°. Weather, Dull.

Artificial Fertilizers.

THE systematic use of artificial fertilizers as a means of increasing crop production has not been practised for more than eighty years or so. True, liming of the soil is as old almost as agriculture itself, and readers of Chaucer will remember the jocund reference to the marl pit in one of the Canterbury Tales. But so far as the general use of fertilizers is concerned the year 1840 is memorable in that phosphatic manures—superphosphates—began then to be manufactured on a large scale for agricultural purposes. It was the great chemist Leibig who by his authority convinced the agricultural world that, as scientific men before him had shown, mineral substances—phosphates, salts of potash, and nitrates are essential to the life of plants. Inasmuch as experiments with plants showed that the roots can absorb only those substances which are soluble in water, or which become soluble when added to the soil, there was and is a natural tendency to measure the value of a fertilizer by the extent of its solubility in water. Needless to say this principle is a sound one—to the extent that if a substance added to the soil is and remains completely insoluble its direct value as a fertilizer is nil. Knowledge of the requirements of plants has, however, increased greatly in recent years. It is now known, for example, that the roots of plants flourish best when the soil solution, that is, the film-water which covers the innumerable soil particles, is very dilute. For example, it is estimated that the Wheat plant grows best when the soil solution contains no more than three parts of nutrient salts in 10,000 of water. A large increase above this figure not only does no good, but actually works harm; for it is true for roots as for mankind that enough is better than a feast. An excess of an indispensable nutrient substance is indeed harmful to the growth of plants. In the use of artificial manures some gardeners commit the mistake of "giving too little and asking too much," others err on the opposite side. But fortunately for them the soil possesses properties which tend to save them from the result of their liberality. Many substances when added to the soil are absorbed by it. That is, the particles of the substance stick with persistence to the soil particles with the consequence that if a soluble absorbable substance be added to the soil some of it is taken out of the solution and put, as it were, into the bank. Then as the root absorbs the material in solution the soil "bank" pays out more, and so on until the bank deposit is exhausted. Not all substances, however, are absorbed by soil. For example, sulphate of ammonia is absorbed, but nitrates are not. As a consequence of this behaviour it follows that it is good practice to add sulphate of ammonia at any convenient time to a soil that requires nitrogen, but that it is bad practice to add nitrate of soda, except at times when the actively growing plant can absorb it before rains have washed it out of reach of the roots. Needless to say there are other considerations to be taken into account in deciding which of these nitrogenous fertilizers to use. Thus there is ground for believing that as the ammonial constituents of sulphate of ammonia are absorbed by the roots the sulphate enters into combination with lime or such-like base and so reduces the alkalinity of the soil. On the other hand continued use of nitrate of soda adds to the soil alkalinity. Now it would appear that a good garden soil ought to be fairly neutral; neither too acid nor too alkaline, and, if so, it follows that it must be good practice for gardeners to ring the changes on the use of these two fertilizers, employing nitrate of soda and sulphate of ammonia alternately. Modern knowledge of the soil is likely to help growers in other directions also. The specially prepared phosphatic manures, for example, are somewhat costly. From the gardener's point of view this perhaps is no great matter, for in spite of their cost, such phosphatic fertilizers as bone meal, basic slag and, upon occasion and in certain soils, superphosphate, are all cheap to the gardener, that is, a moderate use of them amply repays and more than repays the outlay. Nevertheless where economy counts—and nowadays it counts or should count everywhere—there appears to be promise of an alternative and cheaper means of obtaining phosphatic manures. According to M. R. Avattaneo*, mineral phosphates, of which vast quantities are available, are by themselves too insoluble to serve as sources of phosphates to plants; yet if they are finely ground and well mixed with crude potassic fertilizers the solubility of rock phosphates is increased. Moreover, it is stated that the action is reciprocal and that the crude potassic fertilizer acquires also, by mixing with the rock phosphate, an increased solubility. If this be indeed the case then we should have ~~in the~~ mixture an ideal fertilizer so far as phosphates and potash are concerned. For an ideal fertilizer is one which gives to the plant enough and no more; undergoing solution but slowly, its contribution to soil fertility is more lasting than were it to enter rapidly into the soil solution.

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* International Institute of Agriculture III, 3, 1925.

Export of British-grown Apples.—It may surprise some who are acquainted with the large imports of fruits from South Africa at this season to know that Cape Colony is a profitable market for English Apples. Mr. W. P. Seabrook, in an address before the Home Counties Market Growers' Association at Worthing recently, stated that we have been exporting, in a sort of hit or miss way, for some twenty years, hardy fruits to Cape Colony. Apples which were sent to Cape Colony at a cost of 5s. per box brought in a return of from 13s. to 15s. Last year, when Bramley's Seedling, Newton Wonder and Bismarck were realising 3s. 6d. to 5s. a bushel at Covent Garden, his firm was getting 13s. to 15s. home from Cape Colony. Mr. Seabrook stated that there were other markets open to our growers, including South Africa, Egypt and India, all of which offered very attractive outlets. He was careful to point out, however, that the best methods of packing and grading must be adopted and the fruits should be of good sample.

Town Botany in Winter.—Under the auspices of the Workers' Education Association, Professor J. Montagu Drummond, F.R.S.E., delivered the first of a series of four lectures on "Town Botany in Winter" in the Botany Department of Glasgow University on Saturday last. In dealing with "Seeds and Seedlings" he drew attention to certain features of winter vegetation in a large city and remarked that the question of hibernation or winter sleep of plants was most conveniently approached by a study of seeds and of the seedlings to which they gave rise. The structure of various common seeds, such as Broad Beans, Indian Corn, Onion, and Mustard, was explained by the aid of living specimens and lantern slides, while the relation of plants to light, gravity, and temperature was illustrated by means of various seedlings. Some unusual types of seedlings with special features of interest were also dealt with, and the general conclusion to be drawn was that the seed is a structure admirably adapted for the purpose of bringing the plant through an unfavourable period such as our winter, not only unharmed but ready to take advantage of the return of more genial conditions by a prompt resumption of active growth.

Royal Gardeners' Orphan Fund.—At the Annual General Meeting of the Royal Gardeners' Orphan Fund held on Wednesday last at Simpson's Restaurant, Strand, the following candidates were elected to the full benefits of the Fund by resolution:—Beatrice Bell, Williamina Bell, Elizabeth Edith Davis, Bella Gatley, Annie Gatley, Florence May Trebbie, and Maurice William Trebble.

Exports to Canada.—Mr. Leonard S. McLaine, Secretary, Destructive Insect and Pest Act Advisory Board, Ottawa, Canada, informs us that on May 4, 1925, a general memorandum was issued calling the attention of importers and shippers to the Order issued under the Animal Contagious Diseases Act in reference to the use of hay, straw and fodder, including Sphagnum Moss, as packing, on account of the foot and mouth disease. Several shipments of nursery stock have already been returned to the country of origin from the port of arrival in Canada on account of not being accompanied by the required certificate which must be attached to the ship's manifest. Importers are advised to notify their shippers of these requirements, and if further information is desired, a copy of the memorandum referred to can be obtained on request.

Nervous Reflex of Plants.—An account of the interesting botanical discoveries made by Sir Jagadis Chunder Bose is to be published in two volumes by Messrs. Longmans, Green and Co., who inform us that the first volume, dealing with the Nervous Reflex of Plants, is almost ready for publication.

Retirement of M. Viger.—After thirty years active occupation of the Presidential chair of the French National Horticultural Society, M. Albert Viger has retired, and has been created Honorary President of the Society. Few Presidents have shown more aptitude for their position, and M. Viger's resignation will be greatly regretted by all the members. Owing to his profound knowledge of all matters horticultural, and his scientific attainments, he grasped with ease the most difficult problems, and directed with mastery the many important congresses over which he presided. Nor is he less liked and respected in foreign countries, where he has represented French Horticultural interests at conferences and exhibitions. He carries with him the cordial good wishes of all who knew him, and it is devoutly to be hoped he will be in a position to preside at the centenary celebrations of his society, which will take place in 1927. He is to be succeeded in the active Presidency by M. Fernand David, whose portrait, together with a short biography, is published in the next column.

The American Florist.—Our contemporary, *The American Florist*, which claims to be the oldest floricultural paper in America, has reached us in an entirely new form. Formerly printed and published as a magazine it has now become a newspaper, with pages twenty-two inches long and fifteen inches wide. In general make-up it has adopted the style usual to American and many other newspapers, *i.e.*, big headlines and startling headings, and advertisements freely mixed with the text. It may be conservatism on our part, but we do not admire our old friend in its new dress, nevertheless, we offer our heartiest good wishes to the proprietors and staff on their enterprise, and trust the new venture will be entirely successful.

The Use of Paraffin in Gardens.—The note on p. 60 by Mr. Alfred Simeson on paraffin as a fungicide, pointing out its efficacy for a particular purpose is a good example of its general usefulness, and there is no doubt that paraffin is one of our most potent and useful specifics in the control of many pests. If every user would take the pains which Mr. Simeson advocates and emphasises, in its application, the use of paraffin would be more widely spread and less would be heard of harmful effects. The apparent improvement in the appearance of plants after the application of a paraffin wash, as noted, is probably due to its cleansing power, but it is probable that it not only acts as a cleanser of filth and destroyer of germs, but also makes the plant more resistant to the subsequent attack of pests, and this may be due to the slight coating of the sprayed plants with a more or less mineral film. Every one knows the difficulty of mixing water and paraffin, the laws of physics governing matter compelling the paraffin to float on the surface and, unless the mixture is kept constantly and actively agitated, the danger of getting more paraffin than is good for the plant is always present. But there is another and more subtle danger in that if used periodically on woody subjects harmful effects may result from the cumulative absorption of small quantities of paraffin by the tissues of the plant. It would appear that the absorption of a small quantity is harmless, but, like so many other mineral poisons and their action on living organic bodies, the cumulative effect of the continuous absorption of small quantities results in the final destruction of the living organism. It is common practice to dissolve soft soap in the water to facilitate the mixing of the paraffin with it, but this does not eliminate the danger, indeed, it may add to it, for although the water impregnated with soap holds the paraffin in suspension better than the clear water, the same physical law compels the paraffin to rise immediately the mixture is left unstirred, and whereas in the clear mixture the operator is prepared for this and sees it definitely, the tendency is to overlook it in the cloudy, soapy mixture. An emulsion of soft soap and paraffin, as made at Kew, by kneeding the soap in the paraffin, is quite safe to use.

M. Fernand David.—It gives us great pleasure to present to our readers this week the portrait of M. Fernand David, who has been elected President of the French National Horticultural Society in place of M. Viger, who has just retired after thirty years' occupation of this arduous position. The new President is fifty-six years of age, and has had a distinguished and active career. He has achieved much distinction in parliament, where he occupied the position of Senator for Haute-Savoie; he has been successively Minister of Commerce, Minister of Public Works, and, under no fewer than five different Governments, Minister of Agriculture. In all these positions his knowledge and energy have enabled him to serve with signal success the interests of his country in general and of agriculture in particular. In 1925, M. David undertook—it is well-known with what conspicuously successful results—the heavy task of Commissary General of the International Exhibition of Decorative Arts in Paris. The horticulturists who contributed such brilliant displays of their products to the exhibition greatly appreciated the tact, affability and perfect courtesy which they received from M. David. We feel convinced that the new President will use his outstanding qualities to the full in the service of the Society, and that it will benefit greatly from his excellent standing in official circles.

M. FERNAND DAVID.
New President of the French National Horticultural Society.

The "Mescal Button."—The daily Press reports the discovery of a peculiar narcotic plant called "Peyote," which is said to be "a rare species of Cactus found in Mexico." It is claimed that very small quantities of the juice of this plant when taken by human beings produces visions and clairvoyant powers. Dr. Rosehier, a French chemist, who with Dr. Osty, director of the Paris Metapsychic Institute, is reported to have conducted experiments with the plant, found that after taking small quantities of the juice the "subject has merely to shut his eyes and immediately a magic world of figures, animals, plants and beautiful stretches of landscape passes before him with the rapidity of a cinema film." Those partaking the juice are also said to be gifted with second sight, to be able to read the thoughts of persons near by and to rapidly solve abstruse problems. It is stated that the effects of this "wonder-plant" immediately pass off when the subject opens his eyes, and leaves no unpleasant after effects, as in the case of opium and other narcotics. This new discovery of the Daily Press apparently relates to the "Mescal Button" (Lophophora Williamsii), which in the Indian vernacular has a host of other names, including Peyote, and has long been used by the Indians in their religious rites. In the mountains of Mexico it is held in superstitious reverence by several tribes of Indians, and also in the United States. It does produce beautiful, highly-coloured visions, but its taste is bitter and disagreeable, while with some it induces violent vomiting. In some of its effects the use of the Mescal Button may be compared to hasheesh, except that instead of inducing merriment it produces a state of blissful content, often followed by insomnia. The Mescal Buttons are the dried tops of the Cactus, which, strung and offered for sale in the streets of Mexico, have much the appearance of Mushrooms.

Honour for Dr. L. H. Bailey.—The American Society for the Advancement of Science has chosen Dr. L. H. Bailey as its president. Dr. Bailey is best known in this country by reason of his numerous books on horticulture, and particularly his *Cyclopedia of Horticulture*, consisting of six large volumes. The Society which has elected him as President has a membership of fifteen thousand; he will not, however, commence his Presidency until December of the present year.

The Noxious Weeds Act.—At the instance of the Ministry of Agriculture a landowner of Selsdon, near Croydon, Surrey, was fined 40s. with £3 3s. costs for failing to obey an order to cut down or otherwise destroy weeds growing on land owned by him at Purley. Mr. Ward, for the Ministry, said that the land in question was vacant building land, and that private gardens in the vicinity had suffered from the spread of the weeds. Proceedings under the Noxious Weeds Act are comparatively few in this country, which is far behind other countries in the matter. In defence, it was stated that the owner's gardener had failed to carry out instructions given him last August.

An Example to Gardeners.—Everyone associated with horticulture should recognise the great need for assisting the two gardening charities—the Gardeners' Royal Benevolent Institution and the Royal Gardeners' Orphan Fund. It will be seen on p. 106 that whilst the former institution had a list of fifty-one candidates whose claims to the benefits of the fund were recognised by the executive, the committee was only able to recommend twenty for election. These two charities exist solely for benefiting old and indigent gardeners and their widows, and the orphans of gardeners, and it is the duty of all professional gardeners in a position to do so, to help these charities by all that lies in their power. Mr. W. Auton, gardener to Viscount Elveden, of Pyrford Court, Woking, sets a notable example to his fellow gardeners, for during the past year he has raised no less that £102 which he has divided between the two charities. Even this is not all that Mr. Auton has done in the past twelve months for those in need, for, in addition, he has assisted his local parish nursing association to raise a sum of £40. By means of a rummage sale in conjunction with the Parish Nursing Association he was successful in obtaining £80, £40 of which was allotted to the Nursing Home and £40 to the gardening charities. He also held a successful whist drive which resulted in raising another £11, and by various other means, including collections, he brought his efforts for the year up to £142, of which the gardening charities, as stated, have received £102. Mr. Auton, who, like most gardeners, is a very busy man, sets a worthy example for other gardeners to follow, and shows what can be done by enthusiasm, enterprise and hard work.

Forestry in Scotland.—At the annual meeting of the Royal Scottish Arboricultural Society held at Edinburgh on the 3rd inst., Lord Lovat, Chairman of the Forestry Commissioners, gave some interesting particulars on the development of forestry in Scotland. Under the Forestry Commission scheme, stated Lord Lovat, the planted area at the end of the present planting season would amount to approximately 140,000 acres. Next year a further 22,000 acres would be planted, and in the following two years 26,000 and 30,000 acres respectively. Lord Lovat stated that the proportion of plantable to unplantable land which had been acquired in Scotland was distinctly disappointing. Out of 70,000 acres of specially selected deer forest only 18,000 acres were available for planting. Large tracts of land in northern Scotland were quite unsuited to tree growth, and practically the whole of Sunderland and Caithness fell under that category. Lord Lovat stated that the Forestry Commissioners hoped to be able in a comparatively short time to establish one or two paper pulp industries with a sufficient area of Spruce and Sitka Spruce woods to make a pulp industry possible.

Extraordinary Graft Hybrids.—Mr. F. W. Smith, Villa Nino, Eze-sur-mer, writes that an interesting notice regarding graft hybrids has appeared in *Le Chasseur Francais*, a journal which treats on many subjects, and has a wide monthly circulation. The writer signs himself *P. A., Subscriber*, and the following is a translation of his observations:—"We possess, in our garden, a Peach tree which bears fruits the form of which resembles exactly that of the Tomato, whilst the rest are that of the Peach, with this difference, that the perfume is much finer and the fruits are of a Muscat flavour. This fruit is very delicate, but exquisite. This result has been obtained by grafting the Tomato on to the Peach. Its author, who died several years ago has left us some curious graft, amongst others, a Cork Oak with two branches, one of which is a Medlar which produces perfect fruits. To those who doubt it, I can show them the Peach-Tomato. This tree is probably unique, and merits the attention of agriculturists." Mr. Smith adds: "Comment is needless, and I certainly shall not make any effort to inspect the Peach-Tomato (which may be a Nectarine fruit on a Peach tree), notwithstanding the invitation.

New Series of Potato Trials.—The National Institute of Agricultural Botany is now prepared to accept entries for its fifth series of yield and quality trials of new varieties of Potatos from breeders who are willing to entrust the Institute with the marketing of their productions on a profit-sharing basis. The trials are planned to last for five years, at first in Scotland only, but in the later years also in the English Potato districts. Only those varieties which do sufficiently well in the trials will be placed on the market. Full particulars of the conditions of the trials are given in a form of agreement which may be obtained from the Secretary, National Institute of Agricultural Botany, Huntingdon Road, Cambridge, to whom those intending to enter new varieties for these trials should apply not later than February 28, 1926.

National Carnation and Picotee Society and New Members.—At the general meeting of the National Carnation and Picotee Society, held on the 23rd ultimo, it was decided by the Committee that new members should receive a gift of plants upon joining the Society. Those subscribing the minimum subscription of five shillings are to receive five first-rate plants whilst those subscribing ten shillings and upwards will receive twelve plants. The Secretary of the Society, to whom application should be made for membership forms, is Mr. E. G. Lowe, 65, Exeter Road, Cricklewood, N.W.

Lanarkshire Potato Experiments.—Under the auspices of the Lanarkshire Education Authority in conjunction with the Glasgow and West of Scotland Agricultural College, a lecture on the results of the Hillhouse Demonstration Area, near Lanark, was delivered at Douglas Water, on Monday evening, by Mr. James McCutcheon, F.C.S. The chair was occupied by Mr. James McLaren, factor to the Earl of Home. In dealing with the Potato experiments the lecturer explained that the area was divided into six plots of half-an-acre, which had a uniform application of farmyard manure at the rate of sixteen tons per acre. The artificial manure differed either in quality or kind, but Mr. McCutcheon held that the ideal artificial manure was that used in plot six, consisting of three hundredweights of superphosphate, one-and-a-half hundredweight of sulphate of potash, and one hundredweight of sulphate of ammonia. The yield from this plot, it was explained, was not so great in quantity as some of the others, but the difference was more than made up in the quality. The total yields per acre of each variety were as follow:—White Rose, 12 tons, 16 cwts., 45 lb.; Di Vernon, 5 tons, 12 cwts., 40 lb.; Catriona, 1 ton, 17 cwts., 50 lb.; Miller's Beauty, 11 tons, 10 cwts., 53 lb.; Downe's Early, 7 tons, 12 cwts., 77 lb.; Rhoderick Dhu, 9 tons, 1 cwt., 42 lb. Kerr's Pink:—Plot 2, 13 tons, 6 cwts., 54 lb., Plot 3, 14 tons, 16 cwts., 82 lb.; Plot 4, 14 tons, 13 cwts., 96 lb.; Plot 5, 16 tons, 17 cwts., 8 lb. Plot 6, 14 tons, 16 cwts., 82 lb.

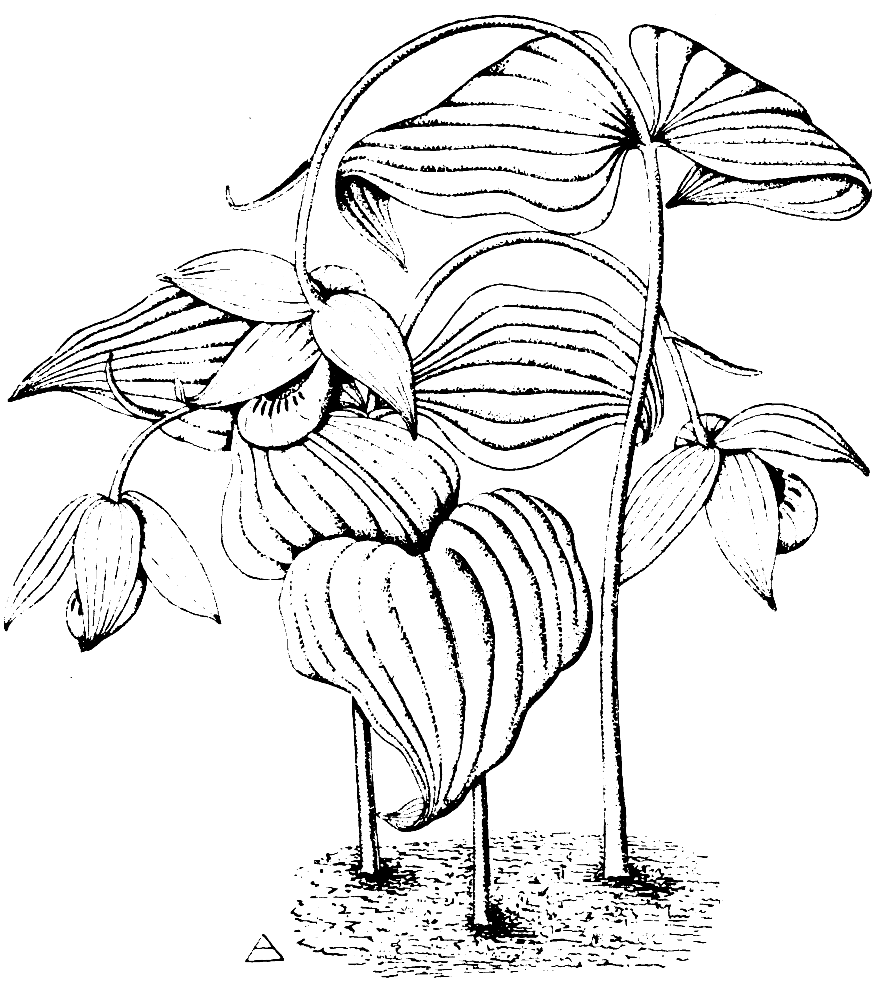

FIG. 54.—CYPRIPEDIUM DEBILE.

(see p. 114).

Gardens at the Ideal Home Exhibition.—Fifteen gardens are to be arranged in the annexe at Olympia on the occasion of the Ideal Homes Exhibition, which will be opened on March 2 and continue until March 27.

The Late Mr. James Whitton.—Mr. James Whitton, of Bellahouston House, Glasgow, for nearly thirty years Director of Parks and Gardens to the Glasgow Corporation, who died on October 30, left personal estate valued for probate at £6,955.

Appointments for the Ensuing Week.—Tuesday, February 16: Winchester Gardeners' Association meeting. Wednesday, February 17: Royal Gardeners' Orphan Fund Committee meeting; Pangbourne Gardeners' Mutual Improvement Association's meeting and lecture. Thursday, February 18: Crowthorne Horticultural Society's lecture. Friday, February 19: Manchester and North of England Orchid Society's meeting.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Libocedrus Chiliensis, Endlicher (Thuja Chiliensis, Don)*.—A noble evergreen Conifer, a native of the Andes of Chili and the southern provinces of Antucco and Valdivia, growing to the height of sixty-five feet to eighty feet. Sir Wm. Hooker says: "It is a tree of great beauty, and well worthy of being introduced into our gardens. There can be little doubt, from its native regions (inhabiting the same elevations on the mountains as the Araucaria imbricata), that it will thrive well in the open ground." The following is an extract from a letter lately received from the well-known botanical collector, Mr. Bridges:—"In one of the late numbers of *The Gardeners' Chronicle* I see some doubts expressed relative to the Thuja Chiliensis being hardy in England. It will, in my opinion, be perfectly so, judging from what I have seen of the plant in the province of Colchagua, south lat. 35°, which is its most northern limit. It is found near the snow, and where it freezes, I should say quite as severely as it does in the vicinity of London. Where the tree grows alone it is very graceful, the lower boughs are even on the ground, and it elevates itself to a great height. The timber is esteemed by the natives for building purposes. I have myself seen it as far south as 42°, and I learn it is found in the vicinity of Cape Horn." Fine, healthy, well-established, one-year-old plants, from seed, in single pots, 7/6 each, three for 21/-, or £4 per dozen. Hugh Low and Co., Clapton Nursery, London. *Advertisement in Gard. Chron., February* 15, 1851.

Publication Received.—*Sweet Peas: Their History, Development, Culture*, by Chas. W. J. Unwin. W. Heffer and Sons, Ltd., Cambridge. Price, 5/- net.

The Week's Work.

THE ORCHID HOUSES.

By J. Collier, Gardener to Sir Jeremiah Colman, Bart., Gatton Park, Reigate.

Cypripediums.—During recent years large numbers of hybrids of the cool-growing section of Cypripedium have been raised. This had the effect of extending the flowering season over a long period ; many of the plants commence to flower in November, and where moderate numbers are grown, a good display may be obtained well into the spring. No set time can be fixed for the necessary repotting of these plants ; a suitable time for the operation is shortly after the flowers have been removed, as fresh root action takes place at that period. Cypripediums, especially those of the C. insigne type and its hybrids, are of very easy culture, and are ideal plants for the amateur. Unlike many other Orchids, they are benefited by a fair amount of pot room. Better flowers are usually obtained from plants provided with ample rooting space than from those that are in a pot-bound condition.

Repotting Cypripediums.—When repotting has been decided on, the usual practice is to prepare a mixture consisting of equal parts of best fibrous loam, good English peat or Osmunda-fibre, broken rather roughly with all the earthy portions shaken out, some Sphagnum-moss and sufficient crushed crocks to render the mixture porous. The receptacles should be filled to one-third their depth with material for drainage, and the drainage in turn should be covered with a thin layer of coarse soil. The plants, especially those that are very pot-bound, should be watered copiously a day before being disturbed. After taking the plants from the pots, remove the drainage material and all exhausted soil from between the roots, cutting away all decayed portions of the latter. Place the plants in the pot, spread out the roots and work the compost firmly between them, filling the pot almost to the rim. If the soil is already moist these newly-potted plants will not require much water but will be benefited by light sprayings overhead. When the new roots have penetrated the soil, a liberal amount of water should be afforded them. Where a special house is devoted to this class of Cypripedium the temperature should range from 55° to 60°, and with sun-heat it may be allowed to rise 5° or 10°.

Potting.—With the advance of the present month the daily amount of light and sunshine will increase appreciably, and many Orchids will be showing renewed activity, both in their top growths and roots, therefore, plants that need re-potting or re-surfacing may be given attention from now onwards. The best time for the operation is when roots commence to develop from the bases of the young growths or the previous year's pseudo-bulbs. It is important that clean receptacles are used. These should be drained in such a manner that it is impossible for the compost to become waterlogged, as whatever material is used as a rooting medium, the question of watering needs great consideration and foresight, for the very best soil becomes sodden and sour if kept constantly wet.

FRUITS UNDER GLASS.

By T. Pateman, Gardener to Sir Charles Nall-Cain, Brocket Hall, Hertfordshire.

Muscat Vines.—To have ripe Muscat of Alexandria Grapes in August the vinery should now be closed. Assuming the vines have enjoyed a period of rest, and the house in which they are grown has been thoroughly cleansed and the walls treated with lime-wash, the borders in which the vines are growing should be put in order. First remove the surface soil with great care so as not to injure the young, fibrous roots. After this has been done, if the border is dry soak it with tepid water before applying a top-dressing of new soil. The latter should consist of a mixture of rich, fibrous loam, coarse bone-meal and broken charcoal. Should the border need extending, as will be the case where young vines have been recently planted, this should receive attention now. I generally extend them about two feet each year until such time as they are completed, but much will depend on the strength of the vines under treatment. The drainage material should be arranged in position and carefully covered with two thin layers of fresh turves placed grass-side downwards. Add the new compost, building up the border with turves cut into four-inch squares. The compost should be in a fairly dry condition to permit of it being made moderately firm. This choice Grape requires a long season to finish its fruits and develop a rich amber colour in the berries. It is therefore advisable to start them now, but at the same time guard against overheating the water-pipes or the vines will break weakly and become infested with red spider. The foliage of Muscat Grapes is not so hardy as that of most other vines.

Vine Eyes.—If the planting of green vines during the summer is in contemplation, it is not too late to insert vine eyes. The easiest method of raising young vines is to sever the shoot with a sharp knife about one-and-a-half inch above and below the bud, then split the growth in halves and peg the part with the bud to the soil in a sloping direction with the bud uppermost. The pots containing the eyes may then be placed in a fairly brisk heat. In a very short time the buds will show signs of growth, when care is necessary to prevent damping. When it is found that the "eyes" have made sufficient roots, I strongly advise them to be grown in shallow boxes for summer planting. They are very easily transplanted when grown in this manner by removing one side of the box, moreover, the roots will extend over a larger area than those that are grown in pots. The soil for the border should be used in a fairly dry condition, and should be protected from heavy rains. In the case of cold, wet soils it is necessary to cement the bottom of the border, which should be made in a slanting direction to ensure water draining away freely from a properly prepared outlet. Drainage is best provided with rough, broken bricks over which should be placed a good layer of lime-rubble. The new border need not be more than three feet wide and about two feet deep. A good compost consists of two-thirds rich loam, the other third lime-rubble, bone-meal, and burnt garden refuse. The border should be made moderately firm, therefore the compost should be used in a fairly dry condition to permit of this being done.

THE KITCHEN GARDEN.

By F. Streeter, late Gardener to Major Albert Pam, Wormley Bury, Broxbourne.

Parsnips.—So soon as the ground is in a suitable condition, this crop should be sown. The seeds take a considerable time to germinate and the roots require a long season of growth to bring them to perfection. Drills should be drawn an inch deep and the rows made eighteen inches apart. Sow the seeds very thinly along the centre of the drill. Rake the soil and leave the bed as neat and tidy as possible. To obtain extra fine roots for exhibiting it is necessary to bore perfectly straight holes with an iron bar, three feet six inches to four feet deep, at a distance of twenty inches apart in rows two feet asunder. Fill the holes with finely-sifted soil prepared during inclement weather, make it moderately firm with a cane and leave a depression in the centre of the hole about an inch-and-a-half wide, in which place three seeds. Cover the seeds lightly with a fine, sandy compost. Fork the soil between the rows as the work proceeds, leaving all perfectly tidy. Tender and True, Maltese, Hollow Crown and The Student are excellent varieties.

Celery.—For very early work a small sowing of an early variety of Celery should now be made. Sow the seeds very thinly in well-drained pots containing a sandy compost, and germinate them in a temperature of 55° at night. So soon as the seedlings appear expose them to all the light available, and on no account allow them to become dry at the roots ; it is too early yet for sowing main crop Celery.

Parsley.—Where a difficulty is experienced in providing a good supply of Parsley through the winter, a box or two sown now and the seedlings raised in heat will give an early summer supply.

Spinach.—If a few old frames can be spared for the use of an early sowing of summer Spinach this vegetable will prove a most valuable addition in the early days of spring when choice vegetables are none too plentiful.

Paths, Drains, etc.—So soon as the work of trenching, digging and wheeling is finished, attend to the paths and drains. The latter are most important and should be always kept perfectly clean and in good working order. If gravel paths have become rough they should be turned with a fork and rolled level again. Watering and rolling gravel paths ensures a neat appearance with no loose stones, and the sweeping and cleaning of them is much more easily performed. Where the paths are of turf and kept mown, planks should always be used for wheeling upon them, otherwise the grass will be killed and the path made unsightly. Bare patches should be re-turfed as quickly as possible before the great rush of work in the next month.

PLANTS UNDER GLASS.

By John Coutts, Assistant Curator, Royal Botanic Gardens, Kew.

Exacum macranthum.—Although this beautiful plant is biennial, if seeds are sown now, there is no reason, given good cultivation, why the plants should not flower towards the end of the present year. Make another sowing in April or May ; the plants from this sowing should flower early next year. Where a stock of this plant already exists, it may be propagated by means of cuttings, which root readily in a warm propagating case. The fine seeds should be just covered with a sprinkling of sand and the seed pans with a piece of glass, shading the glass until germination takes place. Subsequent cultural details consist in pricking off the seedlings and potting them on as they require more root room, taking care not to overpot them at any time ; excellent plants may be flowered in forty-eight sized pots. Water should be afforded carefully at all times. This plant enjoys a warm, moist atmosphere of about 60°. The potting compost should be light and well-drained : it may consist of three parts medium loam, and the rest of good fibrous peat and sand. The successful cultivation of this species is by no means easy, but it is such a beautiful plant that it is worth all the care and skill the cultivator can bestow on it.

Statice Suworowii.—This Statice is useful for greenhouse decoration and should be much more generally grown. Seeds may now be sown in a temperature of 50° to 55°, and when fit to handle, prick off the young seedlings into pans or boxes of light soil, afterwards transferring them singly to small pots. When well-rooted, they should be placed in five-inch pots, in which they may be flowered. They grow freely in any good potting compost. Water should be afforded the roots carefully at all times. Later, a successional batch may be sown to flower towards the end of summer. Statice sinuata and S. Bonduellii, both annuals, are also useful for greenhouse decoration, and succeed under similar treatment to that recommended for S. Suworowii. There are several sub-shrubby species and varieties or hybrids which are excellent for greenhouse decoration ; S. arborescens, S. Bourgaei, S. brassicaefolia, S. imbricata and S. macrophylla, are all natives of the Canary Islands. They have blue or purple and white flowers. When seeds can be obtained, they are easily raised from them ; they are also propagated by means of cuttings or layers. S. Butcheri, S. Halfordii and S. profusa are hybrids or varieties of the species mentioned, and at one time were favourite subjects for growing into large specimens. They are ideal subjects for conservatory decoration, for which purpose they should be more generally grown, as they succeed perfectly in a cool greenhouse. They are subject to attacks of mealy bug, which must be guarded against.

HARDY FRUIT GARDEN.

By W. Auton, Gardener to Viscount Elveden, Pyrford Court, Woking, Surrey.

The Fruit Store.—Methodical and regular examination of the fruits in store should be made so that any fruits showing early signs of decay may be used and bad ones removed. A well-constructed fruit room will retain an equable temperature without much attention, but the ventilators should be opened a little on all favourable occasions, closing them on cold nights. Should premature shrivelling cause trouble, it is generally due to an excessively dry atmosphere, and the floor should be sprayed to create moist conditions. Amongst varieties of Apples for present use may be mentioned King of Tompkin's County, which is still in good condition, and a general favourite with those who like a soft Apple; Lord Burghley has also soft flesh and is highly aromatic, while Belle de Boskoop is a worthy successor in supplies to Blenheim Pippin for both dessert and culinary purposes. Ribston Pippin is at the end of its season, but when well-preserved it is still one of our best mid-season varieties, with crisp flesh of remarkably high flavour. Braddick's Nonpariel is a delicious fruit with firm flesh and highly aromatic. May Queen, a medium-sized fruit with crisp flesh is juicy and of excellent flavour; Norman's Pippin has mellow flesh and very fine flavour; Fearn's Pippin is a good variety, the flesh of which keeps firm to the last, and that very old variety Court Pendú Plat has also firm flesh of a high flavour. Annie Elizabeth and Bramley's Seedling provide the main supplies for culinary purposes, and both are in excellent condition. Pears in store require careful attention at this season, and the flavour of most varieties is enhanced if they are subjected to a somewhat higher temperature than the fruit room affords for a period of ten or fourteen days before complete ripening. Beurré Rance has melting flesh and a rich, vinous flavour, and Glou Morceau has a rich sugary flavour, but probably Joséphine de Malines is the best of all late Pears, for when perfectly ripe, its flesh is mellow and juicy and of delicious flavour.

Late Grapes.—Any Grapes still hanging on the vines should all be cut forthwith so that the vines may be pruned and put in order for another season. The Grapes should be cut with sufficient length of stem for the latter to be placed in bottles containing soft water with a few pieces of charcoal to keep the contents sweet. Where a Grape room is not available the Grapes will keep for some time in a dry, airy room, but they should be examined frequently for decayed berries.

THE FLOWER GARDEN.

By F. C. Puddle, Gardener to Lord Aberconway, Bodnant, Taly-Cafn, North Wales.

Herbaceous Borders.—Many herbaceous plants are showing signs of growth, and when the ground is in fit condition, borders from which the plants have been lifted and subsequently trenched, should be replanted. Well arranged herbaceous borders are amongst the most attractive of garden features, but considerable care is necessary to secure both a pleasing arrangement of the plants and a tasteful blending of colours. Most large gardens have at least three or four hardy flower borders, and the best effect is produced by blending two or three colours in each, so that they have an individuality of their own. The plants should also be selected with the object of making the borders attractive over as long a period as possible, and for this reason the colours should be given a wide interpretation. A blue border composed only of flowers which are actually blue, would have a very short season of attractiveness, but a most effective border lasting in beauty from June till October may be made by including all flowers pertaining to blue. Delphiniums, Lupins, Canpanulas, Asters, Iris, Aconitums, Erigerons, Phloxes of lavender and violet shades, Pentstemons and Gladioli may all find a place in the border, whilst Nepeta Mussinii make an appropriate edging. Even with this wide selection, it is possible that the border may appear a little dull during September, and a few clumps of Lilium Henryi and the yellow varieties of Montbretia, planted at intervals, will not only brighten the border at that season, but renew its interest by the introduction of another colour. If a warmer colour is preferred, Lilium tigrinum and the deeper shades of Montbretias may be used.

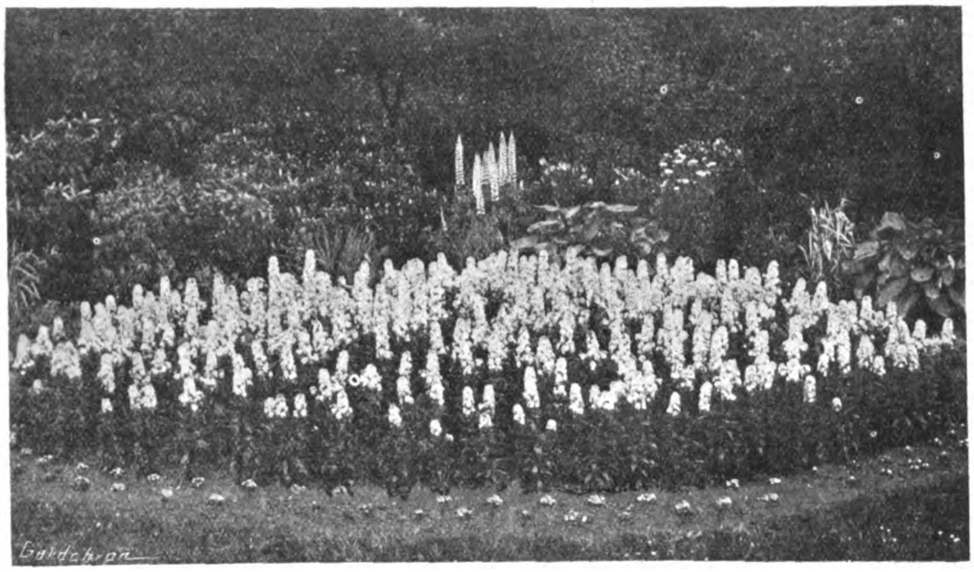

FIG. 55.—BED OF DOUBLE PURPLE HESPERIS AT ALEXANDRA PARK, GLASGOW.

(see p. 116.)

Climbers and Wall Shrubs.—Any necessary pruning of these should be completed forthwith. Clematis of the Jackmanii, Viticella and lanuginosa sections may be pruned back to the old wood, but those of the montana group are better pruned after flowering; if, however, this has not been done, weak and superfluous growths may be cut out now. The various species of Vitis should have their leading growths shortened and the side shoots cut back to two or three buds, so that a system of spurs is formed at fairly regular intervals on the permanent stems. Tender shrubs which are given the protection of a wall may also require a little judicious thinning, after which any fastening of the shoots which may be required should be done. Remove old ties which have become tight and likely to injure the bark. Shrubs which are not of climbing habit should not be tied rigidly in position, but so far as possible allowed to develop their natural shapes, provided the main stems have the protection of the wall.

FOR NORTHERN GARDENERS.

By A. T. Harrison, Gardener to the Marquis of Ailsa, Culzean Castle, Maybole, Ayrshire.

Repotting of Stove Plants.—The occupants of the stove are mostly rapid growers, and some of the plants may become too large to be of service; this applies to Codiaeums, Dracaenas, etc. To obtain shapely specimens ringing should be resorted to. Cut the stem half through, place a small piece of wood in the cut to keep the incision open, and then bind damp moss around the stem at this part. All plants treated in this manner should be arranged at one end of the stove for convenience in syringing them at frequent intervals with tepid water, thus ensuring that the moss is kept moist, and every encouragement given the plants to develop roots. Plants which have filled their pots with roots and are otherwise doing well should be shifted into larger receptacles, using a compost composed principally of good, turfy loam, to which may be added, as the requirements of the plants under treatment necessitates, peat or good leaf-mould, with sufficient sharp sand to render the compost porous. Cuttings of Panicum variegatum, Pilea microphylla and others of a like nature used for the edges of the stages, if rooted now soon form useful plants, and allow the older, worn out plants to be dispensed with.

Shallots and Onion Sets.—These vegetables are both largely grown and are very reliable crops with us, more so than Onions sown out-of-doors during March. They may both be planted whenever the soil is in a working condition, and when the ground has been loosened the sets need simply pressing into the soil about six inches apart in the rows, which should be twelve inches asunder. Examine the rows occasionally for the first week or two to replace any bulbs that may have been disturbed, as this frequently occurs before their roots have taken a firm hold of the soil.

Dahlias and Begonias.—The roots of Dahlias and Begonias should now be placed in a temperature of 50° to 55° and thoroughly moistened. Dahlias, particularly those of the dwarf Coltness Gem type, are increasingly popular, and are easily propagated from cuttings taken when the new growths are from three to four inches long. These, if rooted during March and potted on, make splendid specimens for filling beds or borders in June, and they make a grand display until frosts occur. The older stools also make quite useful plants, but the flowers of young stock are always superior. Begonias are not so readily increased from old stock; in their case it is advisable to sow a pan or two of different varieties each season, and grow the plants on. Procure seed of the very best strains, as the cultivation of choice plants entails no more labour than inferior ones, and the initial cost of the seed is very little more. If bulbils of Begonia gracilis (Martiana) were gathered last autumn, these should be planted now, as they take a considerable time to become established. This Begonia also forms useful additions to the borders in autumn, and is certainly worth growing. Begonias of the semperflorens type are also increasing in favour, and may be raised from seeds or by means of cuttings from stock plants, inserted in a warm house.

ORCHID NOTES AND GLEANINGS.

CYPRIPEDIUM DEBILE.

THIS quaint species (Fig. 54) is a native of China and Japan and was named by Reichenbach in 1874 from an old figure which appeared in *Somoku Zuseta*—an old Japanese work—under the name of Calypso borealis. Curiously enough, five years later, Franchet and Savatier named it C. cardiophyllum, basing their description on a specimen collected by Savatier in the province of Nippon; they cited the figure quoted above, and also an earlier one which appeared, without name, in *Honzo Zufu*—a Japanese work published in 1828. C. debile is not a handsome species, but one of great interest to those who find delight in what are termed "botanical Orchids." It was figured in *The Gardeners' Chronicle* in 1905 (vol. XXXVIII, p. 442), the figure being a reduced reproduction of the original drawing referred to by Reichenbach, a copy of which was supplied by Messrs. L. Boehmer and Co., of Yokohama. The Yokohama Nursery Co. gave a coloured figure of C. debile in their catalogue for the year 1895.

C. debile is a terrestrial Orchid, and although more or less hardy in favoured localities, it is best grown in a cold frame in a shallow pan in a mixture of leaf-mould and chopped Sphagnum moss. Owing to its slender habit and the way in which the flowers hang down from the two-leaved stems, the plant is liable to suffer from winds and storms, therefore the protection suggested is desirable. The modern unheated alpine house would also serve for the protection of flowering specimens of this alpine species which Mr. E. H. Wilson collected in Szechuan at an altitude of 7,000 feet, where it was also found previously by Pére Farges. The flowers are small, the sepals and petals are pale green, each with a brown blotch at the base; the inflated white lip has purple markings at the mouth.

CYPRIPEDIUMS.

THE recent imposing exhibitions of these winter-flowering Orchids, both in London and Manchester, not only prove their great popularity but also the vast improvement made in the size, shape and colour of the flowers of these most useful plants during recent years.

In the environment of large cities and smoky districts, few plants can compare with Cypripediums to furnish a display of blooms during the darkest days of winter.

When Dr. Harris first suggested to Dominy the feasibility of hybridising and raising Orchids from seeds, little did either realise the results that would follow the cross-breeding of these plants. Could the original hybrids be brought together and placed besides the best novelties of the present day the differences would be surprising. To many, extreme size is a great attraction, and when large size is combined with refinement the result is a beautiful flower; but many extremely large flowers, even amongst Orchids, are inclined to be coarse, and have not the charming character of many that are smaller and more refined.

The largest-flowered Cypripediums do not produce inflorescences so freely as the smaller ones, hence they are not adapted to the production of flowers in quantity.

Some of the largest-flowered Cypripediums, perfect in shape and size, were shown by Mr. G. F. Moore on January 12, of which a detailed account was given in *The Gardeners' Chronicle* of January 16.

Some splendidly-coloured Cypripediums are in existence, and by carefully breeding with these the standard of the plants could be raised still higher.

A few which suggest themselves as being useful parents are C. Cappa Magna in its best varieties, C. Perseus, C. Cardinal Mercier, C. Marmion Holford's var., C. Christmas Cheer, and C. Kentigern, although the last is wanting somewhat in shape, yet the blooms have much latent colour which might be imparted to its progeny when the other parent is selected for its fine shape.

There are several others besides those mentioned, namely, the many beautiful C. Niobe hybrids, which may still be a factor in imparting rich colours to hybrids with larger and bolder flowers.

Cypripediums of the largest size and best shape do not always produce the best offspring, and if the ancestry of many of the choicest present-day hybrids is carefully traced, it will be found that many of them have as one parent a plant of quite a second-rate nature. C. Christopher is an illustration, and this also applies to many others, hence hybridisers of these plants should carefully study the ancestry of the plants they propose to use as parents. *J. T. B.*

CYPRIPEDIUM JEAN DOBRÉE FOX.

A FLOWER of a very pretty novelty raised in his gardens between Cypripedium Mrs. Spender Clay (Actaeus × Fairrieanum) and C. Actaeus, Drewitt's variety (insigne × Leeanum) is sent by Frederick J. Hanbury, Esq., Brockhurst, East Grinstead. In point of beauty it ranks with the charming C. Actaeus var. Bianca, raised by Sir George Holtord, but the C. Fairrieanum in C. Mrs. Spender Clay shows in the extended and undulated petals. The flower sent has a flat and well-rounded dorsal sepal, of cowslip-yellow colour, with some obscure emerald-green marking, the upper third and margin being pure white. The petals are cowslip-yellow with faint emerald-green lines and the lip is similarly coloured. The staminode is lighter in colour than the lip and bears an orange-coloured tubercle in the centre.

AGAVES.

AGAVE is an extensive genus of the Amaryllidaceae containing many noble and majestic plants as well as some smaller and elegant ones. They are characterised by thick, fleshy, spiny-toothed leaves, arranged in a rosulate manner, destitute of a stem in most instances, although in some species becoming caulescent.

For practical purposes the genus may be divided into two sections, one having a tall, ramose flower-scape attaining a height of from twenty to thirty feet, the other throwing a simple scape only, with the flowers usually densely crowded upon it, especially towards the terminal end, leaving the base clothed only with a few bracts.

The first section is represented by A. americana the American Aloe, as it is popularly but erronously called, and in which the spike is produced from the centre of the leaves and forms the terminal bud, whilst A. densiflora may be taken as a type of the latter section in which the simple scape is not always terminal, although it sometimes appears so. In many instances it is lateral, and, being developed near the top, it so pushes the centre of the plant over as to appear central, and the crown of the plant appears like a lateral.

Agaves are extremely long-lived plants and, as a consequence, comparatively slow growing, the popular idea being that they flower only once in a hundred years. This is true in a sense with the group producing ramose flower-scapes, for the fact of flowering brings death to the plant from exhaustion. It should be distinctly understood, however, that they do not require a hundred years to reach maturity, but in some instances they have been known to remain a century under cultivation without showing any disposition to flower. Those in the section which produces simple scapes are much freer in flowering and do not become exhausted through the production of flowers.

The plants comprising the genus are chiefly natives of Mexico and a few other parts of South America. A. americana appears to have been introduced to Spain about the middle of the sixteenth century, according to the accounts of old writers, but I can find no record of its introduction to this country until nearly a hundred years later. It would appear that other species were also introduced at about this period, but all under the name of "American Aloes," and several records are in existence of their flowering in this country. In the year 1729, a Mr. Cowell, who then had a famous garden at Hoxton, flowered a specimen of A. americana which he asserted was the first time it had flowered in England, and that those previously mentioned by various writers were not A. americana but other species which had been introduced under the same name. From this date down to the present time many plants have flowered in English and continental gardens, producing spikes from twenty to forty feet in height, and bearing, in some cases, several thousand flowers. The flowering of these plants is, however, a comparative rarity, and the announcement of such an occurrence is sure to attract attention. The giant spike, with its candelabra-like branches, never fails to excite the wonder and astonishment of all who behold it.

Various species of Agave are largely cultivated in Mexico for economic purposes. They are frequently used to form hedges, and when one considers the immense leaves and sharp spines of several of the species, one can readily imagine what a formidable front such a fence would present to any intruder. The leaves of some of the species also yield an immense quantity of fibre of a great strength, which is extensively used for rope-making in Mexico, and although not exported in any quantity, it has been used in this country in the manufacture of brushes. The sap is saponaceous and yields a substance which possesses the property of making a lather either with fresh or salt water. A favourite drink of the Mexicans is also obtained from the fermented juice of some species which is called "pulque." It seems to have been a beverage well-known to the inhabitants from a very remote time, for it was found to be a common drink in the country when the Spaniards first visited Mexico, and it would appear to have been indulged in to excess, for King Nezahualcoyotl issued stringent orders forbidding its sale, on punishment of death, to any but soldiers on the march, aged and feeble people and the mothers of babes in arms.

In considering the merits of Agaves as decorative plants one can advance arguments to claim the attention of gardeners in favour of their cultivation to a greater extent than is generally practised. They are remarkable for the beauty of their leaves, and yield a contrast afforded by no other genus. The larger-growing species are massive, noble plants and amongst the finest objects for surmounting flights of steps to terrace gardens, and for placing in vases on terraces during the summer, while the same plants when removed from their summer quarters form interesting objects for the winter decoration of the conservatory.

Some of the gems of the genus are neat, compact-growing plants, suitable for rustic nooks in many parts of the pleasure ground, and for plunging in rock-work. They may be grown by amateurs having no glass-house, for they are much hardier than is usually supposed, and any shed or out-house will suffice for their accommodation provided they are kept quite dry, and finally they should be favourites with amateurs who have limited space for the accommodation of plants and limited time for attending to them, on account of their great forbearance.

Although the plants are so accommodating that they may be left for a week without water in the height of summer without any visible injury having been caused, this is not the method to develop their greatest beauty and to attain the highest degree of excellence in their cultivation. During the summer they should be given a position under the full influence of solar light and have abundant supplies of water. The soil these plants thrive best in is a good turfy loam, rendered porous by the addition of a liberal portion of coarse sand, and the drainage should be perfect. Care should be taken when repotting the plants as the large. fleshy roots are easily injured, and this work should be done in the spring so that the receptacles are filled with roots before it is necessary to store them for the winter. *A. P. C.*

ALPINE GARDEN.

CROCUS HYEMALIS.

Winter-flowering Crocuses have had a sorrowful time this season, and the weather we have experienced has once more demonstrated the fact that we cannot hope to enjoy these exquisite little flowers to the full without giving them some form of protection against the vicissitudes of our winters.

Those who are possessed of an alpine house or a low structure which can be adapted as such, are fortunate, for in them may be grown the many charming alpines which come too early for the vagaries of our climate at this season. Those who have not a glass structure of this kind may utilise a frame for the purpose, although that does not give the pleasure derived from a house, where the flowers can be viewed at will and without any discomfort from the weather. A hand-light or bell-glass, may also serve and I have found that little boxes, all glass, with the exception of the wooden framework, are valuable for protecting such flowers as Crocus hyemalis, which has white flowers with faint streakings of purple on the outside, and flushed yellow on the throat.

The plant flowers variously from November to January and even February in seasons like this, but when exposed to the weather, it is seldom that the flowers open to the few faint rays of the sun at this season. The little, cone-like buds peep up from the ground waiting for the sun to induce them to expand, and too often the fragile, unopened flowers become sodden pulp. It is seldom, indeed, that our winters are suited to Crocus hyemalis, which seems to miss the sunshine of its native Palestine and Syria. *S. Arnott.*

TREES AND SHRUBS.

CORREA ALBA.

The subject of this note is one of the most perpetually-flowering plants we have, and unlike our native Gorse, which is said to be " in flower every month that has a ' R ' in it," I fancy it would be difficult to name any month in which flowers cannot be seen on Correa virens. [C. alba, Eds.]. Although the flowers are not very showy, the mere fact that this native of New South Wales thrives and flowers in our western districts should be sufficient to warrant it a ready welcome where it has not yet been tried.

The foliage is neat, from half-an-inch to one inch long, dark green and glossy above, while the undersides are covered with a light brown tomentum, as are the younger shoots. The greenish, tubular flowers are produced from the axils of the leaves, sometimes singly, and in many cases in twos and threes, but even when three flower buds are showing they are all at different stages of development, thus ensuring a succession of flowers.

This Correa (Fig. 56) is a comparatively rapid grower, and does well against a wall, where it may easily cover, in time, a space of twelve feet; it also does well in partial shade, and for sunny districts I would recommend it to be planted where it does not receive the full glare of the mid-day sun, and where it will never suffer from lack of moisture. From the remarks of various experts, I am led to believe that this is not a commonly grown plant, and I enclose a few shoots showing flower and foliage for inspection. *A. T. Harrison, Culzean Castle Gardens.*

When specimen hard-wooded greenhouse plants were in the hey-day of their popularity much more attention was given to the cultivation of Correas than is the case to-day. No doubt because of their drooping tubular flowers they are sometimes called Australian Fuchsias. Correas certainly comprise a very distinct and decorative family of hard-wooded plants, all natives of Australia. Most of those in cultivation are varieties or hybrids of three species, C. alba, C. cardinalis and C. speciosa. Six of the most distinct are Backhousiana, bicolor, Harrisii, magnifica, pulchella and ventricosa.

Correas thrive best in a peaty compost with a little fibrous sandy loam and plenty of coarse sand added. The usual method of increase is by cuttings, but some of the varieties and hybrids of C. cardinalis are not robust in habit and thrive better when grafted on a strong-growing form of C. alba.

During the winter give the plants cool greenhouse culture with a minimum night temperature of about 45°, or a degree or two cooler on very cold nights. In summer, stand the plants outside, selecting a position sheltered from rough winds.

The plant illustrated (Fig. 56) depicts one of the numerous forms of C. alba obtained by raising seedlings. This method of propagation is worth following up, for if seeds are obtained by cross-pollinating some of the best named sorts the majority will be more robust than the plants propagated by cuttings. *A. Osborne, Kew.*

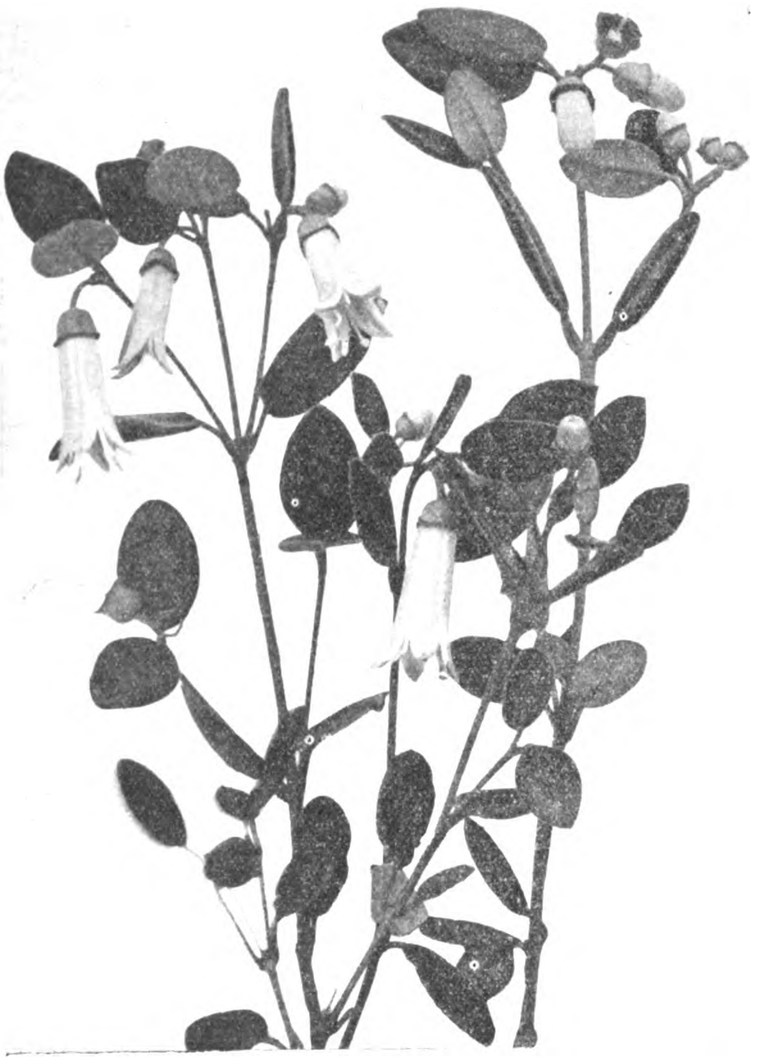

FIG. 56.—CORREA ALBA.

RIBES SPECIOSUM.

This is sometimes called the Fuchsia-flowered Gooseberry, and no doubt there is a slight resemblance in the manner the long red stamens protrude through the tubular calyx, these recalling Fuchsia gracilis very much to mind; but the prickles with which it is armed dispel all doubts, and prove its relationship to our more familiar Gooseberry.

Ribes speciosum is a deciduous shrub, but so impatient is it, that in some seasons, even by the month of November, it is again putting forth its delicate-looking, pale green leafage, and delicate as the leaves may appear, they do not seem to be adversely affected by the winter storms, but come safely through our most buffetting gales without any apparent injury, until, by February, the plant is in full leaf.

The flowers are produced freely along the undersides of the young pendulous shoots, and being of a bright red, almost scarlet, colour, they make a fine show during April and May, especially when the plants are allowed to grow more or less naturally. Trained on a wall Ribes speciosum will reach a considerable height, and it may be that the height of the wall alone limits its ascent, because each succeeding year's growth adds to its stature. Pruning, which should be performed so soon as the flowers are over, consists merely in removing the older wood, and thus encouraging the production of young, vigorous shoots, which, when the time of flowering again comes round, will be covered with their rows of scarlet flowers. The fruit is described by one authority as being " sweet and glittering, like amber beads," and " delicious in September," but I heartily agree with another authority, Mr. W. J. Bean, when he states, " the fruit is rarely seen in this country." I have not seen one fruit on our half-dozen or more bushes over a fairly long period. Perhaps coming from California it may require either some particular insect to pollinate the flowers, or stronger sunshine to enable its pollen dust to dry sufficiently to be potent. *A. T. H., Ayrshire.*

HARDY FLOWER BORDER.

DOUBLE HESPERIS.

I enclose photographs of beds of Hesperis matronalis, fl. pl., as we used to grow it here. At one time we grew three varieties, the purple as shown in the illustration (Fig. 55) and two white varieties. Of the white sorts one was tall growing, with woolly foliage and a loose flower-spike slightly tinted with colour at first but turning to pure white when fully open. The other white form was dwarfer in the spike, pure white, and had darker, glossy foliage.

We were very successful with these plants for years. They were bedded out early in spring and were quite a feature here. The critical time was when they were lifted to make room for the summer bedding, a shift they did not like; they were replanted in nursery beds until autumn when they were lifted, divided and wintered in cold frames. For some reason difficult to understand our plants lost their wonted vigour, decline set in, and ultimately we lost our whole stock.

I have been able, recently, to procure one of the white varieties from a southern nurseryman through *The Gardeners' Chronicle*, but I have failed so far to obtain the other two. The double Hesperis was comparatively common in the west of Scotland for a long period, but no one now appears to have either of the varietes mentioned. At its best here the double Hesperis equalled double Stocks, and during the evening the fragrance from these was almost overpowering. Perchance the varieties are to be found, but I do not know where. *Jas. Brown, Curator, Alexandra Park, Glasgow.*

THE "CUT FLOWER" VALUE OF DELPHINIUMS.

Few topics stand less in need of discussion to-day than that of the grandeur of the modern Delphinium as a garden plant; its popularity is universal and its merits are recognised by all. One feels less assurance regarding due recognition of the "cut flower" value of its noble spikes, and is rather disposed to the opinion that Delphinium flowers are not invariably appraised at their true worth.

Perhaps another way of putting it would be to say the flowers are not always used in a manner calculated to reveal the best that is in them, but the vital point is that the production of the correct material is a governing factor without which ideal results are impossible of achievement. It is an unfortunate misconception which supposes that the small, weakly spikes, side shoots, and more or less starved or stunted produce of Delphiniums should be the material used for cut flower decoration; no flower can give pleasure or win lasting approval which is constantly seen in an inferior, half-developed state, and to suggest that the larger spikes which reveal the true character and nobility of Delphiniums are too big and heavy for cut flower decorations savours of a very limited outlook regarding floral art. Feathery lightness and daintiness has each its legitimate purpose, and we have no lack of appropriate flowers for such purposes, but the bold, the impressive, the massive, even, are equally purposeful, essential and admirable, and it is under circumstances that warrant bold, imposing and striking effects that Delphiniums become immensely serviceable material.

Two important points may be mentioned at the outset, for they have been proved, not once or twice by uncertain chance, but by long and careful observation, and are furthermore endorsed by a commercial grower who cuts thousands of Delphiniums for a high-class trade every season.

First, the early spikes of the larger kinds are of smallest value, for the simple reason that they shed their centre petals and lower sepals very quickly if it should happen—as it often does—to be hot and dry just at the time they are sufficiently developed for cutting. The second crop of bloom which usually comes after heavy midsummer rains proves to be of greatest utility for providing cut flowers.

The second point is that all the largest, boldest-spiked varieties produce the best material for cutting if the roots are lifted and divided annually. It may be necessary to point out that the word "divided" is used, for I am not advocating the method of propagating from single crowns or cuttings, as is quite properly adopted by growers for exhibition. It would be rather extravagant to limit one's plants to single stems when growing for the express purpose of cutting, but by dividing a clump into portions carrying a few strong eyes, flower-spikes of good form and quality, without coarseness, are produced, and, strange as it may appear, it is an established fact that there are less of extra stout, timbery stems from the plants which are annually divided than from those which remain undisturbed for a second or third season. Let it be clearly understood that these remarks apply to the tall, strong, heavy-spiked varieties; not to the Belladonna type. Whilst the large, dense spikes are of great utility, more especially the later or second spikes, it must be admitted that the Belladonna type is even more serviceable, and it is greatly to their advantage that the flowers are possessed of greater staying power during the early summer and in periods of high temperature.

The variety Persimmon is one of the very best of all for cutting; it blooms early; even in the northern midlands it is a June flower; it produces an abundance of bloom of a very delightful colour, and it is of exceptionally hardy constitution. By affording varying treatment to different batches of Persimmon it is possible to maintain successional supplies of bloom from June right through to October. One batch should be left undisturbed for three seasons. This will give the earliest crop, and by cutting over the plants after flowering a good second crop will be secured. One batch may be lifted and divided shortly after the flowers are cut; another batch may be divided in early spring, another when spring is rather far advanced, and by working these different batches intelligently they will follow each other into bloom, and all but the late spring divisions will yield two good crops. It is by no means every variety of even the Belladonna type which will justify all these assertions, but Persimmon has still another very valuable point to its credit—it resists mildew even to the very late autumn. The blemish of mildew is bad enough in the garden, but is intolerable in vases and baskets, and, unfortunately, some otherwise excellent varieties are faulty on this score. Belladonna itself is frequently rendered unusable, while Persimmon, growing close by, remains perfectly clean. Mildew often spoils the second crop of Rev. E. Lascelles, and if the weather is very hot and dry during the period of the first crop the flowers lose their white centres, but a good spike of Rev. E. Lascelles variety is so beautiful and the plants flower so freely that there should be no hesitation in soaking and mulching the roots for the early crop, and in spraying with potassium sulphide just as the spikes of the late crop begin to rise. Only two reasons need be given when this spray fails to arrest mildew; either careless preparation and application is the cause or spraying is delayed until the fungus is too far advanced. Nevertheless, it is of great advantage to have varieties of Delphiniums which even in the damp autumn keep free from mildew, and Blue Bird, exceptionally good for cutting, both early and late, never seems to mildew, whilst similar compliments may be paid to the varieties Mrs. H. Kaye and Edwin Beckett.

It would be imprudent to pretend to give a list of varieties suitable for cutting; many good ones would undoubtedly be omitted, and some would be included which would be satisfactory to some and disappointing to others, but in a very large collection the three or four which have been named are so conspicuously and consistently good that I feel fully confident that they cannot fail to please.

Cut flower production is of considerable importance to gardeners in large establishments where much entertaining is done, and Delphiniums are decidedly worthy of careful consideration in this connection. *A. J. Macself.*

MESEMBRYANTHEMUM.

LITHOPS.

(Continued from p. 102).

Dr. Marloth informs me that L. Marlothii "is a marvel of mimicry; it grows in shallow depressions of granite filled with detritus of the reddish rock and looks exactly like its surroundings. I have put my hand on some of them without knowing they were there until I investigated the spot more closely. There was no other plant visible!"

As the place where it grows has been visited by many collectors and the plant has not been previously discovered, it is evidently well concealed by its imitation of the soil in which it grows. This imitation of the soil is very great; for Dr. Marloth has sent me a small sample of it, which consists of grit only, most of the particles being of about the size of the letter "o" used in printing this, mingled with larger pieces up to the size of small Peas, and coloured white, creamy, yellowish, reddish and brown. These colours and the granular structure correspond very closely with the colours of the irregular and pimply surface of the plant after the growing period is over, but when making fresh growth, the glittering, bright green pimples and elevated creamy markings might cause it to be more conspicuous. This gritty soil can hold but very little moisture, and being contained in but shallow depressions of solid rock there can be no vapour arising from the subsoil. Therefore, as the annual rainfall is very small and long droughts occur, it would seem probable that the plant exists on moisture condensed by the rock when it cools down at night.

Under cultivation I expect this plant will attain to much larger dimensions than those above given, and will probably be found to be liable to damp off if given too much water.

L. marmorata, N. E. Br., in *The Gardeners' Chronicle*, 1922, vol. LXXI, p. 80. To this add reference:—Karsten in *Onze Tuinen*, August, 1924, p. 78, with fig.

L. pseudotruncatella, N. E. Br., in *The Gardeners' Chronicle*, 1922, vol. LXXII, p. 65, f. 33. Add reference:—Mesembryanthemum pseudo-truncatellum, Schwantes in *Monatssch. f. Kakt.*, August, 1920, p. 117, with figs.

L. rubra, N. E. Br.—Said to resemble L. optica, but differs from that species by its intense purplish colour, which it retains throughout the winter, and by its seeds being of a darker brownish red.

Mesembryanthemum opticum var. rubrum, Tischer in *Zeitschr. f. Sukk.*, vol. II, p. 65 (June, 1925).

South-west Africa: Locality and collector unknown.

The above is all the description given of this plant. I have not seen it, but from the characters mentioned, I have no doubt that it is quite distinct from L. optica, N. E. Br.

L. Ruschiana, N. E. Br.—Growths $\frac{3}{4}$–$1\frac{3}{4}$ inch long and 7–19 lines broad, obconic, with a transverse fissure $2\frac{1}{2}$–10 lines deep across the top; lobes convex on the top and somewhat elliptic in outline viewed from above, glabrous, with the sides frequently of a slightly amethyst colour, and the top varying from milky pearl-grey to a yellowish or reddish-ochre tint, marked with a few impressed pits and branching yellowish-red lines. Flowers small, $\frac{3}{4}$–1 inch in diameter, yellow. Capsule 5-celled. Seeds few, large.

Mesembryanthemum Ruschianum, Dinter in *Fedde Repert., Beihefte*, vol. XXIII, pp. 25 and 80 (1923); M. Ruschiorum, Dinter and Schwantes in *Zeitsch. f. Sukk.*, vol. II, p. 21, with fig., and M. Ruschii, Dinter and Schwantes on p. 22 (March, 1925).

Great Namaqualand: In the neighbourhood of Windhoek, near the Khan Coppermine, west, between Rossing and the old railway line, Rusch.

Mr. Dinter having published this under three different spellings of the specific name, I have adopted the earliest form of spelling, which was published two years prior to the other variants.

L. terricolor, N. E. Br., in *The Gardeners' Chronicle,* 1922, vol. LXXII, p. 65. The following completes the description of this plant, taken from living flowers and fruit. Calyx compressed, 3½–4½ lines broad, 5-lobed, glabrous purplish-green; lobes 4–5½ lines long, ovate, obtuse, with membranous edges. Corolla 10–13 lines in diameter, expanding in the afternoon, slightly scented; petals about 30, in 2 series, 4–6 lines long, ½–¾ line broad, linear, entire and obtuse at the apex, clear bright yellow. Stamens numerous, erect, collected into a cone, unequal, 2½–4½ lines long: filaments white, ciliate at the base; anthers pale yellow. Stigmas 5, overtopping the stamens, 3–5 lines long, light yellowish. Capsule 3–4½ lines in diameter, obconic, 2-edged at the lower part, flattish or slightly convex at the top, whitish, with 5 valves and cells, and when expanded 5–7 lines in diameter; valves 1–1½ line long and as much in breadth, triangular in outline, pallid; expanding-keels about as long as the valve, closely contiguous nearly to their tips, where they diverge and are furnished with broad, obtuse membranous, marginal wings; cells open, without cell-wings. Placentas on the floor of the cells. Seeds numerous in each cell, minute, about ¼ line long, subglobose, smooth, pallid, with a brownish nipple.

Laingsburg Division: Near Grootfontein, Frith! Willowmore Division: Near Miller, Frith!

L. Vallis Mariae, N. E. Br.—Growths ¾–1½ inch long and 7–23 lines broad, obconic, with a transverse fissure 1½ line or more deep across the top; lobes flattish or slightly convex on the top, half-elliptic or somewhat lunate in outline viewed from above, varying from nearly smooth to more or less rugose on the top from irregular and somewhat zig-zag impressed lines, entirely yellowish or bluish-milky-coloured with the sides purplish. Corolla 12–16 lines in diameter, yellow. Seeds ⅓ line long, white with a brown nipple.

Mesembryanthemum Vallis Mariae, Dinter and Schwantes in *Zeitschr. f. Sukk.,* vol. II, p. 22, with fig., March, 1925.

Great Namaqualand: Marianthal Farm, Beetz. *N. E. Brown.*

(To be continued.)

ROSE GARDEN.

ROSE ARIEL.

It is unfortunate that there are two Roses bearing the name of Ariel, although the one illustrated (Fig. 57), is not now very well known in gardens, whereas the brilliant-hued Ariel sent out by Messrs. Bees has already acquired popularity. It appears that the original Ariel was raised by Messrs. Paul and Son, of Cheshunt, many years ago, and probably is of the same parentage as Tea Rambler. There can be no doubt as to the beauty of Ariel as indicated in the illustration, which shows a specimen cultivated for many years by the Rev. F. Page-Roberts in his garden at Strathfieldsaye before he retired to Stratfield Sturgis. The veteran rosarian is five feet ten inches in height, therefore a good idea of the size of the weeping standard may be obtained by comparing the two. The original Ariel is a June-flowering Rose, and is in no sense perpetual, but it produces its large, single, pink blossoms abundantly. Mr. Page-Roberts informs us that the plant is pruned back hard each year directly after it has flowered, and it rarely fails to give a good account of itself. It would be interesting to learn whether other old friends of the late Mr. George Paul possess specimens of the Cheshunt Ariel, and if so, whether they are as successful with it as the Rev. Page-Roberts has been.

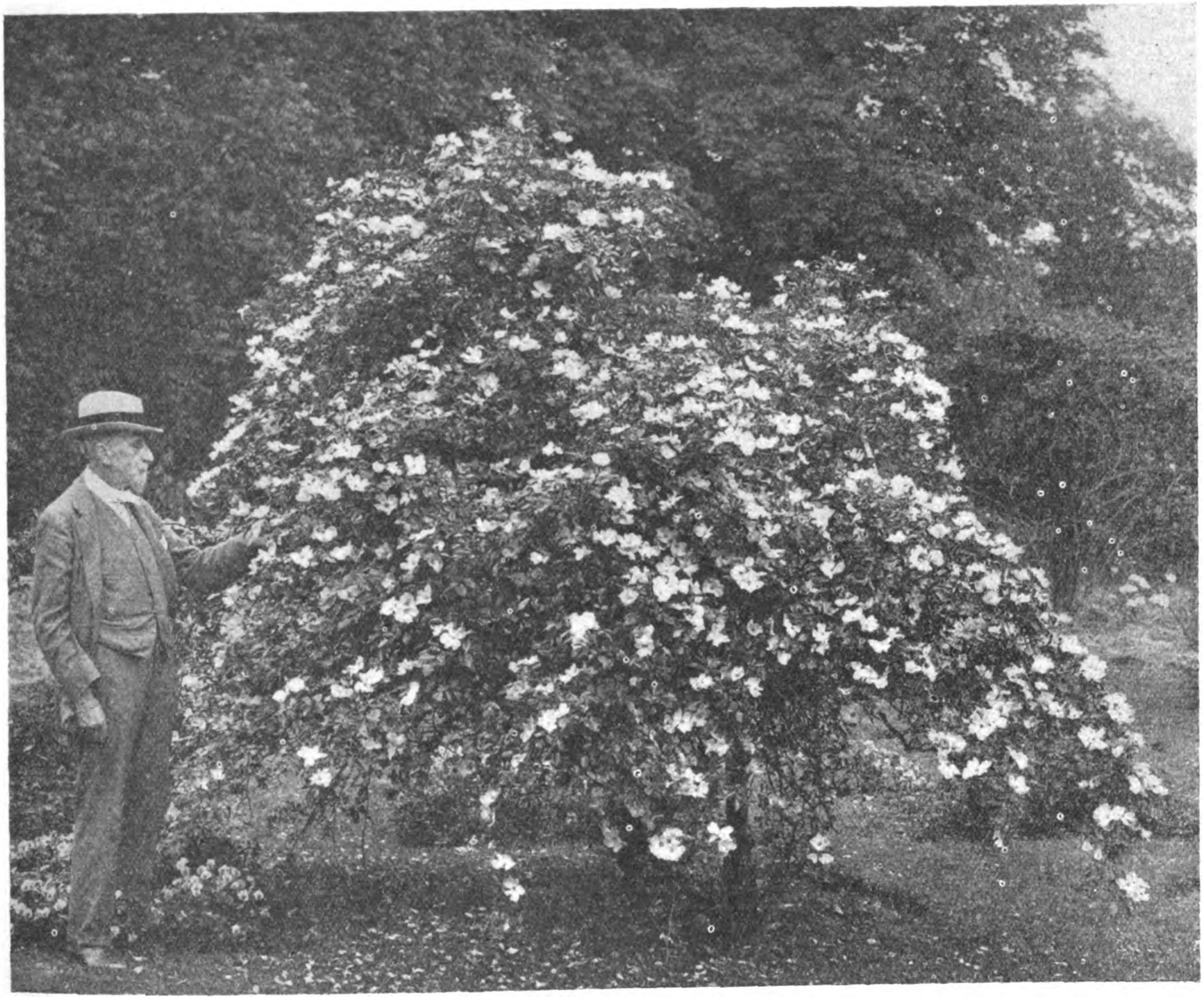

FIG. 57. A SPECIMEN OF ROSE ARIEL IN REV. F. PAGE-ROBERTS' GARDEN AT STRATHFIELDSAYE.

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MR F. KINGDON WARD'S EIGHTH EXPEDITION IN ASIA.*

XXV.—WINTER.

THE following day, January 28, we reached Oga Dzong in two hours, after halting at a prettily situated monastery for a drink of hot yak milk. The valley here is full of villages and there is good pasture for large herds; just across the glen is a group of snow peaks, but they look very barren. As the transport was not ready, we had to cool our heels for the rest of the day at Oga, so we seized the opportunity that night to take an observation for latitude.

On the 29th we proceeded towards Tsetang by the main road, which soon diverged from our route in April to cross a spur and a valley, and then another spur, from the summit of which we saw the Tsangpo below us once more. Descending on a steep slant, we reached the left bank, and followed the river for a couple of hours, to a wretched hovel where we spent the night. Although it was comparatively warm in this trough (altitude about 10,500 feet) compared with the top of the plateau (average altitude about 15,000 feet) one immediately understood why the valley here is almost devoid of plant life, while the slopes a thousand feet higher up are quite thickly clad with scrub.

We found ourselves in a thick fog of flying grit; so dense was it, that though the Tsangpo here is at this season under half-a-mile wide, we could not see the opposite shore. The wind blew with horrible violence, and was bitterly cold; sometimes we could scarcely make any headway against it, and were blinded and choked as in a desert sand storm. No wonder it sucked the life out of the vegetation. For it must be remembered, this was no unlucky storm; the wind blows day after day for weeks, as regularly as clock-work, only ceasing for an occasional snow storm; and always it blows down the valley, so that we marched in its teeth. The nights were calm and clear, though thick with a red dust haze, through which the setting sun peered dimly, to be succeeded by a ruddy moon; only the stars right overhead shone brightly, and as they sank down in the west they were soon smothered and lost to view. By morning much of the dust had settled again, and the sky was a bright China blue, like enamel. But about eleven o'clock the wind sprang up and raged with increasing strength till sunset, when it ceased abruptly. The river, so placid at first, was soon flogged into waves, till the brash ice tinkled and clinked along the shore. The going over the dunes against this awful blast was very heavy, and in the course of a seven hours' march on the 30th, we only did about twelve miles, sleeping in a village a mile back from the river. I was by this time feeling very sorry for myself. The dust had penetrated under my goggles, through my clothes, and under my fur cap; it even seemed to penetrate through the pores of my skin, making me feel stony all over like a Saxifrage. Cawdor's plight was no better.

However, we were now quite close to Tsetang, On the 31st we continued a few miles up the left bank, crossed the river in a barge, and early in the afternoon reached Tsetang again, nearly ten months after leaving. It seemed warmer now than it had been in April, but that was because of the bright sunshine; the nights were cold now.

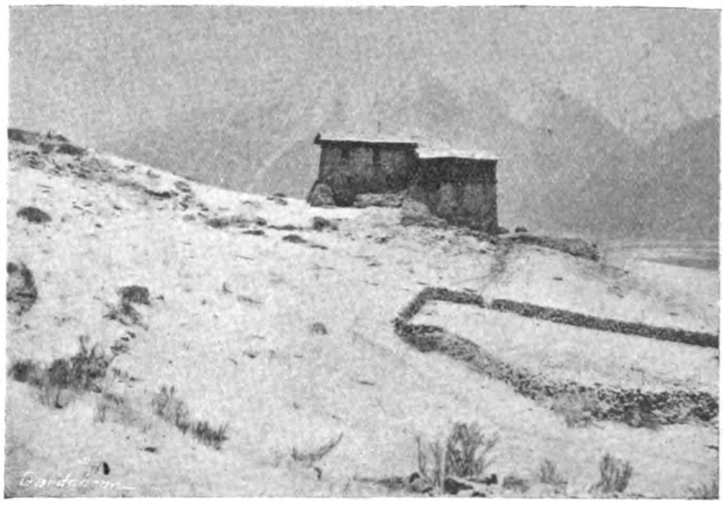

FIG. 58.—NEW YEAR'S DAY, 1925; THE NAMBU GOMPA WHERE CAPT. KINGDON WARD AND LORD CAWDOR SPENT THREE DAYS.

Our friends pressed us to rest a day in Tsetang, but we had no wish to stay an hour longer in Tibet than need be. Between us and India loomed the mighty snowclad ranges of the Trans-Himalaya and Himalaya, and we wanted to get over them as quickly as possible; it was no good sitting down in the sunshine of the Tsangpo valley and thinking about it. So on February 1 we were off again, marching up the stony valley towards the first pass. This valley is quite well populated, and in the villages were the usual clumps of Poplar and Willow, with Buddleia, Hippophaë, etc., by the stream. But these wide, flat valleys owe their formation almost entirely to the lack of trees on the hill-sides, which are deeply trenched by the heavy rainstorms, and pour vast quantities of gravel into the main valley, while the soil is instantly swept away, or blown away. Where there is forest, the glens are always narrow and V-shaped, if water-worn, U-shaped if ice-worn. Higher up the valley, however, as usual, there were plenty of dwarf shrubs, such as Ephedra, Caragana, Rhododendron, Potentilla fruticosa, and Lonicera spinosa, as well as herbaceous plants like Primula Waltonii, Isopyrum grandiflorum, Meconopsis horridula, etc. In fact, the northern flank of the Trans-Himalayan range really has quite a respectable flora, and it is bare only on the open plateau, where there is no water, and no protection from the wind.

On February 3, still travelling almost due south, we crossed the Trans-Himalayan range at over 16,000 feet, and found ourselves on the plateau once more; despite the altitude, there was very little snow here, but the wind was awful, and we lost the way and did not reach a house till 10.30 at night. The view on which we gazed next morning was a desolate one. The air was very still, and the cold intense; in every direction huge snow peaks towered up into the blue sky, but all around us the bare plateau, patched with snow, heaved and rolled like a frozen sea. Here and there were the black tents of herds whose faces were equally black, and numbers of yak nibbled at the short yellow turf in the hollows. After gaining the summit of a ridge we could plainly see, far away in the south, a mighty range of mountains glittering in the sunshine; it was the Himalaya. From the plateau we descended into an arid, dusty valley, thickly populated for Tibet, and crossed a small stream which was really one of the source streams of the unexplored Subansiri, a big river of Assam; and after a slight diversion to the east turned south again. We were following the ninety-second meridian pretty closely now. The tumbled hills here, between the great main ranges, were harsh in outline, lacking the flesh of vegetation to clothe the bare bones.

On February 6 we had to cross a high pass, so we started in good time, and rode ahead of the caravan in the hope of crossing the pass before the wind got up. However, we did not, and we came in for a particularly bad time on the other side; for as we approached the foot of the Himalaya the good weather broke up, and we came in for a series of snow storms, and here the snow lay fathoms deep, as at the Doshong La in October. The night of the 6th was one of the worst in our experience. Our quarters were cramped, miserable and draughty, and the dung fire gave out nothing but smoke. We had 50° of frost, and slept little; but the transport animals had to stand out in the yard all night in the snow, with their saddles on their backs! How they survived such an ordeal I do not know.

Following this bad night, the 7th saw the longest and most difficult march, in deep snow; but we were buoyed up by the thought that we were now crossing the main Himalayan range. The wind started early, and the ascent through the frozen, powdery snow to the summit of the pass was slow work. At every step we went in knee deep, and the toil on a steep slope may be imagined. The view from the top was not pleasant; nothing but snow in every direction, with rugged ranges of mountains all round, and slate-grey clouds frothing sulkily

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* The previous articles by Mr. Kingdon Ward were published in our issues of April 12, May 17, June 21, August 9, August 30, September 27, November 1, 1924, April 4, May 9, June 6, June 20, July 4, July 18, August 1, August 15, September 5, September 19, October 10, October 24, November 21, December 5, December 19, 1925, January 2, and January 16, 1926.

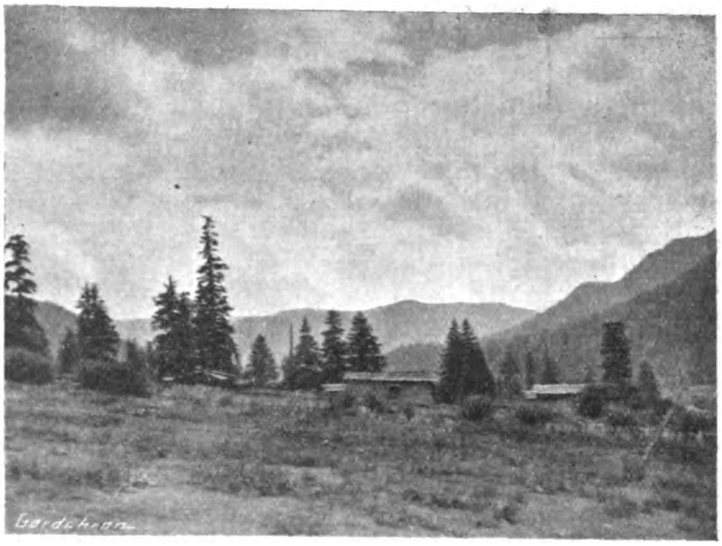

FIG. 59.—TUMBATSE; CAPT. KINGDON WARD'S BASE FOR FIVE MONTHS.

over them. If it was unpleasant in the Tsangpo valley with the wind hurling grit in one's face all the time, it was absolute torture now, when the grit was replaced by frozen snow. A blizzard of ice spicules met us at the top, and we floundered on knee deep, at the rate of a mile an hour, seeing no vestige of a house. At last we crossed a low col, and saw a deep valley right at our feet; a yak caravan (Fig. 61) was toiling up the slope, for the Tibetans prefer to travel at night, if there is a moon, thereby missing these gales. It is a wise plan for 40° or 50° of frost is nothing when you are marching, so long as the air is quite still.

We reached the large village of Tsöna at dusk, and were put up in a fine, big house, where they had wood fires, and we soon got warm drinking buttered tea. We felt elated for we were over the Himalaya, and that in seven days; by the Gyantse route it would have taken us at least fifteen.

We now thought ourselves practically in India; six or eight days we supposed at most separated us from the plains. We were quickly undeceived. In the first place we learnt to our disgust that we should have to stay in Tsöna the following day, as there was no transport ready; indeed, the people wanted us to stay two days, but we flatly refused. In the second place, the short road via Tawang was closed by snow, and we should have to go by a lower pass and a longer route. And in the third place it appeared that we should have to go through part of Bhutan, for which we had no passport, so that things might be made difficult for us. As the whole valley was, of course, under a deep mantle of snow, we stayed in the house on the 8th and I repacked things, wrote letters and looked at the seeds, wondering the while how they were standing the trip. So far, they had had to put up with temperatures so low as 15°F., but it would not be very long now before they would have to face 90° F. However, my thermos flasks were still intact, and, indeed, were quite sound when posted from Calcutta three weeks later.

We got off late on the morning of the 9th, with pony transport, a regiment of yak having been dispatched to try and stamp a trail over the Tawang Pass, by which communication with India is maintained; we, however, made for the Pö La, which is only 14,900 feet. The day was brilliantly fine, but we started so late that though it took us only three hours to reach the pass, by the time we got there the wind had risen, and the snow was flying once more. Little we cared. It was the last mountain range between us and India, and we panted up the steep slope, floundering in the snow, fairly bursting to see down the southern side of the Himalaya, after six weeks of winter on the plateau.

At last, we reached the summit, and there, far below us, we saw Fir trees, looking very Christmasy nevertheless. Down we went, by a rough path; but I went wandering off along the flank of the hill, because a few hundred feet below the summit the Rhododendrons began and I was able to gather seeds of several species.

The change was extraordinarily abrupt, and we had not gone far down the valley when we came into whole thickets of Rhododendrons, of much the same type as those met with further east. I noticed 'Anthropogon,' 'Triflorum,' 'Cinnabarinum,' 'Lacteum' and, lower down, masses of a small 'Arboreum,' with bronzed leaves; this species was new to me and I collected seeds. (K.W. 6403).

Towards evening we reached a Mönba village on the edge of the forest, high above the river, and halted for the night. There was a fair amount of snow here, but it was soft and woolly; next day we would be out of the snow for ever—or at any rate until we got back to England! *F. Kingdon Ward.*

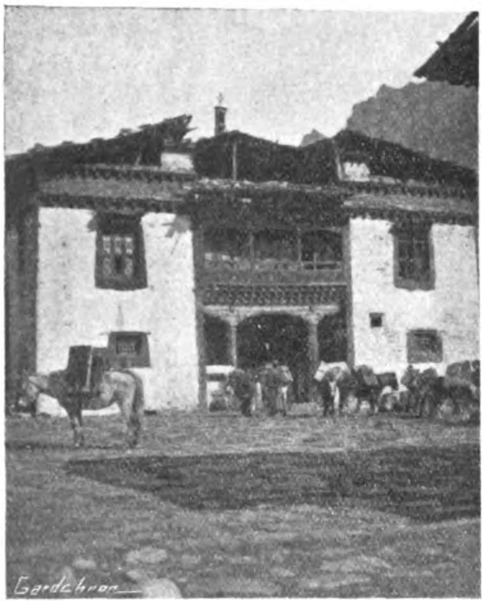

FIG. 60. AN EARLY MORNING START.

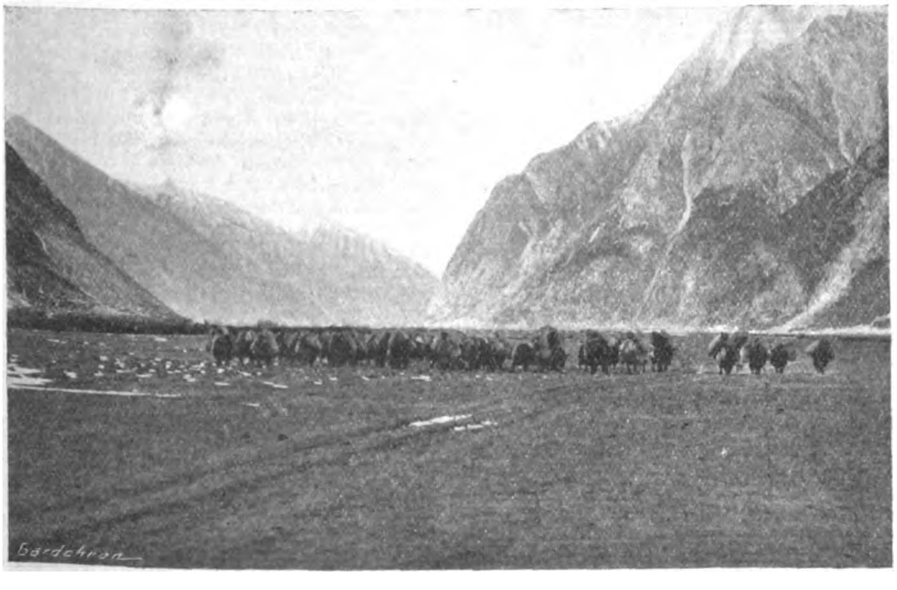

FIG. 61.—YAK CARAVAN ON THE PLATEAU OF TIBET.

THE MOTH-CATCHING ARAUJA SERICIFERA.

I GATHER from Mr. Smith's reply to my query, that the Potherb moth was the species he referred to as having been caught by the flowers of this Arauja sericifera; and if he cares to send me specimens of any other moths captured by this plant and unknown to him, I will let him know their names. The Privet Hawk and Silver-Y moths and Small White butterfly have been recorded as victims as well as bees, wasps and bluebottle-flies, but the Humming-bird Hawkmoth, although visiting the flowers, appeared able to withdraw its proboscis safely. A short account, illustrated, with a sketch of the flower and arrangement of the anthers by which the insects are caught, appeared in the *Gardeners' Chronicle* for Dec. 16, 1916, and this peculiarity is also referred to in *Revue Horticole* for Nov. 1, 1903 (p. 491). The subject has also been discussed in the *Bull. de la Soc. des Sciences Natur. de l'Ouest de la France*, for 1899; and in the *Journal d'Horticulture de France* for Feb., 1911, Mr. Künckel d'Herculais has a note on Arauja and Hedychium flavum as insect-trapping flowers. It may be well to add that Arauja sericifera was formerly known as Physianthus albens (White, or Brazilian Bladder Flower) and is more or less hardy outdoors in favourable localities in Britain, though usually grown inside. *C. Nicholson, 35, The Avenue, Hale End, London, E. 4.*

NOTICES OF BOOKS.

The Scent of Flowers.*

Into a neat little book, Mr. Hampton has collected a large amount of information concerning perfumes in nature, with special reference to flowers and plants.

The author, in preparing this volume had in view the fact that the results of the researches of chemists and perfumers in the pursuit of their trade are not easily accessible to the gardener, or to the general public. To satisfy such readers, Mr. Hampton has mentioned the sources whence he obtained much of his information, and the list of authorities, given at the end of each chapter, should be of inestimable value to every student of the subject.

The author begins by giving a description of the olfactory sense, and he states "The pleasure value of the sense of smell is usually underrated because we fail to realise that all that we call 'flavour' in food is an olfactory sensation." This is not altogether easy to understand when we recall the particularly evil odour given forth by Strawberries when a considerable number have been brought indoors. Were this perfume to intrude upon our taste the fruit would soon be banished from our tables.

To appreciate fully the composition of scent a certain knowledge of chemistry is necessary. The perfume of flowers is due to an essential oil known as an attar. This is compounded in general with carbon and hydrogen, oxygen, often nitrogen and in some cases sulphur. To these are added "esters," compounds of acid and alcohol. It is, for instance, to an alcohol of which geraniol is the principle, that is largely due the scent of Attar of Roses. The more delicious and delicate the scent of a blossom, the more complicated are the chemical components of its attar. The author tries to be as little technical as possible in his definitions of scent, but we wonder whether the "man in the street," for whom his book is intended, will be much wiser when he reads that "the Attar of Jasmine consists principally of *benzyl acetate* shaded off with traces of the allied *benzyl formate* and *benzyl propionate* and associated with *methyl anthranilate* and *indol*." Still, this is an extreme case, and there is so much to arouse the wish to learn more of the subject of the book that the scientific side of the composition of scents should be readily mastered with a little trouble.

In the treatment of so illusory a subject as scent, the writer has a hard task, owing to the fact that the sensitiveness of the olfactory organs is so varied in individuals. Thus, while some persons revel in the scent of Hawthorn, Phlox, or even Privet, others set them down as detestable. It is the same with the strength of perfumes. There are many folk who can detect no scent in Frau Karl Druschki Rose, while others describe minutely the delicate perfume given out by this Rose before the flowers are fully open.

To general readers the interesting, though brief, chapters devoted to the Function of Scent and to its History will be very attractive. As regards the first, there is no doubt but that insects are far more appreciative of scent than we are—witness the night-flying moths that discover the Phloxes and Œnotheras when all other clues than perfume seem to be at rest.

The book closes with several appendices, including a list of the component parts of the Orange, Bitter Orange, Gardenia and Lavender attars; a list of scented shrubs, perennials, annuals, bulbs and plants for hedges and walls of a small garden. A special appendix is devoted to the sweet-scented flowers of autumn. A rather fuller index would, in our opinion, have enhanced the value of the book.

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* *The Scent of Flowers and Leaves, its Purpose and Relation to Man*, by F. A. Hampton, M.A., B.M., B.Ch. (Oxon.). London. Dulau and Company, Ltd., 34-36, Margaret Street, W. 1. Price 6s.

ORIGIN, EARLY HISTORY AND DEVELOPMENT OF THE POTATO.

(*Continued from page 85*).

Safford* has demonstrated that Heriot's "Openauk" was not a Solanum at all, but Glycine apios (Linn.) a tuber-bearing Legume. The tubers of Glycine apios were an important food of all the Indian tribes of eastern North America, from the Gulf of Mexico to the St. Lawrence river. By the English colonists they were called Indian Potatos, Big Potatos or Ground Nuts. The various Indian tribes had each its name for them :—"Openauk," "Openaug," "Penag," and "Penac," were their Algonquin names. The Ground Nut corresponds exactly with Heriot's description, and while there is no species of tuber-bearing Solanum indigenous to east North America, Glycine apios is still to be found in abundance throughout the woodlands of that district. The confusion between the "Openauk" of Virginia and the "Papas" of Peru, can be traced to Clusius, who, although not suggesting that they were identical, remarked that the tubers called "Papas," observed by Cieca, were apparently not unlike the roots which the Virginians called "Openauk." Clusius was referred to by Gerarde as though he were responsible for identifying the Peruvian "Papas" with the Virginian "Openauk."

It will be seen from the above how the presumption of a Virginian origin of the Potato has arisen. Authorities are agreed that the Potato is not indigenous to North America, and that if it did come from Virginia it must have been imported there in some way. Raleigh personally, had probably nothing to do with the introduction of the Potato, and he never visited Virginia, although he tried to do so and failed on his return from his expedition to Guiana in 1585.

A monument has been erected to the memory of Sir Francis Drake in Offenburg, Germany, with the inscription : "Introducer of the Potato into Europe in 1580." It is true that Sir Francis Drake encountered Potatos in November, 1578, as a food in use by the natives of South Chili, but it would appear that he did not consider them worthy of serious attention.† A menu card is still extant showing the fare at a banquet which Drake gave in November, 1580, to the honour of Queen Elizabeth on board his ship. In this menu no mention of Potatos is made.

It is not surprising that there is so much vagueness in literature concerning the introduction of the Potato into England ; the principal actors of the drama could have had no inkling of the great future in store for the plant. It is, however, possible to reconcile the above traditions in the following manner :—Potatos may have been brought to Virginia by Drake, having been plundered from the Spanish, or they may have been obtained by the colonists from the Spaniards who had also settled in the Southern States of North America,‡ or by English pirates who had pillaged Spanish ships. The Potatos could then have been brought to England in ships under Drake's command and by Raleigh's people, not, however, by Raleigh himself. This solution to the very difficult question concerning the introduction of the Potato into England is, when all matters have been duly considered, quite as probable if not more so, than any other of the suggestions submitted. Gerarde grew Potatos in his garden before 1597, and the return of the colonists in 1586 is a likely date for their arrival. Safford, however, after a critical study of the available evidence, comes to the conclusion that the introducer and exact date of introduction of the Potato into England cannot be determined.

The above does not exhaust by any means the stories concerning the entry of the Potato into this country. Putsche (1819) maintained that Sir John Hawkins introduced the Potato into Ireland in 1565,, having obtained it from Santa Fé de Bagota. Safford, however, points out that Hawkins never visited Santa Fé de Bagota, but called for provisions at a port called Santa Fé on the coast of what is now Venezuela, where he obtained, amongst other things, Sweet Potatos. Sir Joseph Banks also, in a lecture given to the Horticultural Society, London, in 1805, criticised the suggestion that Hawkins introduced the Potato, and stated that what the sailor did handle was the Sweet Potato. Another tradition has it that the first coming of the Potato to Britain was accidental, tubers having been washed ashore from a trading vessel returning from a transatlantic voyage and wrecked on the Galway coast. The first published description of the Potato was given by Bauhin in 1596. Bauhin was the first to give the Potato its present botanic name, Solanum tuberosum. Gerarde, in his *Herball*, (1597), was the next to depict it and in 1601, Clusius in his *Rariorum Plantarum Historia* described the plant, naming it "Papas Peruanorum."

So far, therefore, we can only state with certainty three facts, viz. :—(1) The plant is indigenous to South America ; (2) it was introduced into Europe in the latter part of the sixteenth century ; (3) two independent introductions took place, one into England and one into Spain. *T. P. McIntosh.*

(*To be continued*).

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* Safford, W.E., "The Potato of Romance and Reality." *Jn. of Heredity*, 1925.

† Safford, W. E. "The Potato of Romance and Reality." *Jn. of Heredity*, 1925.

‡ E. Roze; *Histoire de la Pomme de Terre*, 1898.

MARKET FRUIT GARDEN.

As there were only eight days in January entirely without either rain or snow, all work except pruning was seriously hindered. The land was nearly always too wet or too hard with frost for either planting or digging, and winter spraying was frequently interrupted by wind, rain or frost. Thus there are heavy arrears of work to be overtaken. The total fall of rain and snow at my place amounted to 3·31 inches, making the fourth month in succession with over average rainfall, denoting a winter both wet and severe.

Winter Spraying.

I just failed in my intention to get all the Plums sprayed with tar distillate wash during January, but one more fine day would have seen the work completed, except for a few quite young trees. Fortunately the buds are backward, and no harm will be done ; and there should be ample opportunity during February to spray the Apples. It would be wiser another year, however, to be prepared to begin this spraying at the first favourable opportunity in December, and so make sure of getting the work finished while the buds are quite dormant. One should then be able to select only the most settled weather, and avoid having results upset by rain. The first plantation of Plums sprayed was finished under excellent conditions, except that on one day, when the wind rose at mid-day and stopped the work, several barrels of the mixed wash were left over and became frozen. The makers of this particular wash warn one against this, and evidently not without reason, as the frozen wash showed a little tendency to separate out from emulsion, and it did not seem to spread quite so well on the trees nor to burn the grass so much. I shall be interested to see whether there is any difference in the final results where the trees received the frozen wash. Perhaps it would have been wiser to throw it away : but it is expensive stuff. The spraying of a second plantation was attended by less fortunate conditions, rain falling on several occasions soon after work was finished for the day. Here again I kept a record, and shall be able to trace any effect on the cleansing of the trees and the control of insects. I had one case last year where rain followed immediately after spraying, but it did not appear to make any difference. Gardeners who have only a few trees to spray are fortunate in being able to choose perfect weather for the work.

I hope I have bought enough of this tar distillate wash to spray every Apple and Plum on the place. After what I have seen on several other fruit farms, in several seasons, and my own experience of last year, I have not the slightest doubt as to the great value of this treatment. It probably does all that can be done in the way of controlling aphides and Apple suckers, besides cleaning the bark perfectly. There is also the evidence of one experiment at Long Ashton that it is capable of preventing brown-rot of Plums. If it will really control this disease, as well as the dreaded leaf-curling aphis of Plums, it will indeed prove valuable for this crop. Several species of caterpillars, including winter moth, are also controlled to a considerable extent, though, in a bad year, a certain amount of spraying with arsenate of lead will no doubt be necessary in spring. There are many brands of tar distillate washes, but it would hardly be wise to conclude that all of them are efficient.

Searching for Insect Eggs.

It is always worth while to search the trees in winter for the eggs of some of the worst insect pests, as this serves as a warning as to which pests, if any, may be expected to give exceptional trouble in the spring. It is not always a safe guide, as much depends on conditions at hatching time. A good pocket lens is, of course, necessary to aid the search. Most of the eggs are to be found near the fruit buds. This winter I have not found any of the eggs exceptionally numerous. Those of the Apple sucker are the most easily found, but they are only about normal in numbers. Apple aphides in general seem to be rather below normal with me, and the same may be said of Winter Moth eggs. Those of the leaf-curling Plum aphis are always so widely scattered that little idea can be gained as to the chance of a serious attack. Reports read so far from observers in other districts, whilst they vary, as they always must, show that in some places the eggs of aphides are a good deal more numerous than they have been in the last two years, and in some cases more females of the winter moth have been caught on grease bands; but, on the whole, the reports are not very alarming.

Stored Apples.

My attempts to keep the Apple store at a low temperature, mentioned in previous notes, whilst not without result, were not altogether successful. For one thing, they started too late; but the chief reason is that the insulation of the room is not good enough to keep the temperature down for long after it has risen outside. However, I think the Apples have kept rather better than might have been expected, considering that the keeping properties of most varieties appeared to be decidedly poor in the autumn. Fortunately, only about 200 bushels of Bramley's Seedling were stored. These are being sold now, though they might, perhaps, have kept for a few weeks longer without too much loss; and they realise only sixpence a bushel more than when they were put away! Once again, therefore, storing has not paid me. *Market Grower.*

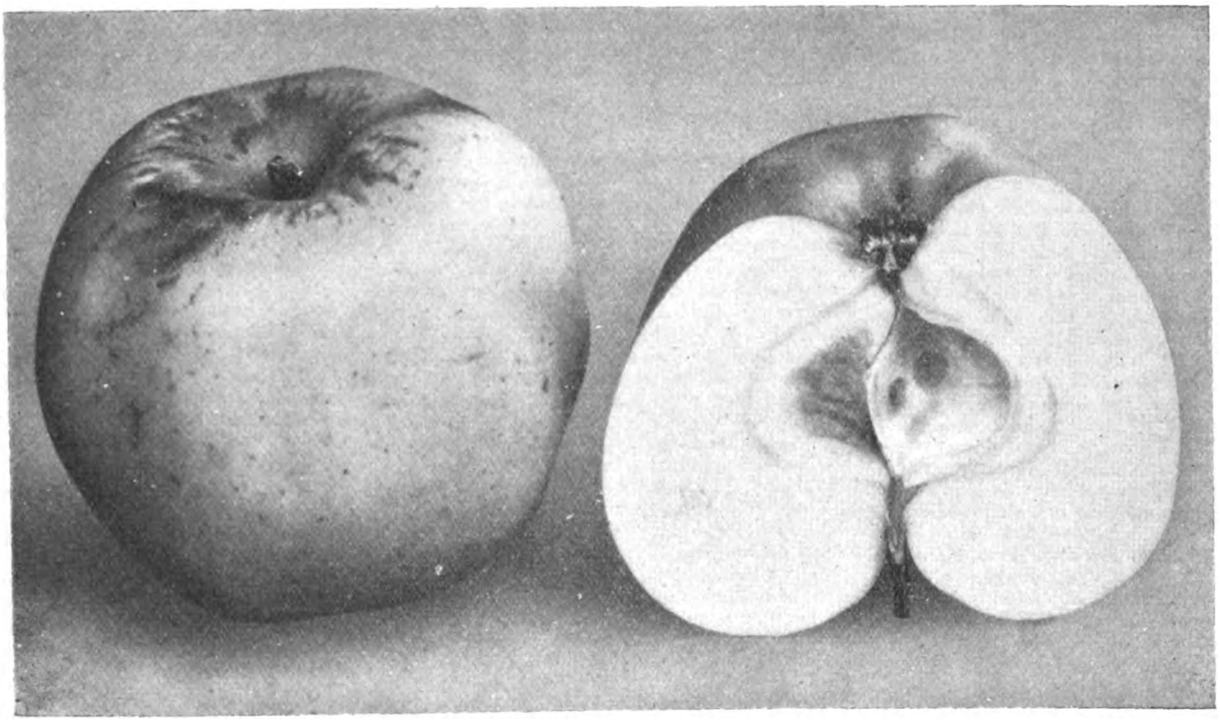

FIG. 62.—APPLE STONE'S (SYN. LODDINGTON).

FRUIT REGISTER.

APPLE STONE'S.

By many growers this Apple (Fig. 62) will be best known as Loddington, but the name most commonly employed in Kent, where the variety originated, is Stone's. Loddington is a village near Maidstone and the original tree was found there on a farm belonging to a Mr. Stone, hence the two names.

This somewhat conical-shaped variety is of large size and valuable for culinary use late in the year, keeping under favourable conditions so late as January.

It is a popular sort with market growers and makes a fine orchard Apple, bearing abundantly and needing little pruning.

The tree, however, has a tendency to canker in some soils, and for this reason it is not so generally grown now as at one time.

A GOOD SOUR CHERRY.

A correspondent (Mr. H. Reinhardt) writing in the issue of *Möllers Deutsche Gärtner-Zeitung* for the 21st of January, says: "Eleven years ago, in 1915, there was a description in this journal of Cherry Exzellenz von Hindenburg, since when it has been very widely grown in Germany, and its qualities much praised. It compares very favourably with the true 'Lotkirsche' or 'Schattenmorelle,' especially in earliness, as it is ripe fully three weeks in advance; it has a noble, wine-like, aromatic flavour, fine red juice, and a particularly small stone. I have myself grown it for twenty-three years, and have never seen Monilia or any other disease on it. For all purposes—eating raw, cooking, preserving, etc.—it is the best sort I know. My plantations occupy an elevated, exposed position, which I find is very suitable."

VEGETABLE GARDEN.

THE SPROUTING OF SEED POTATOS.

Potato tubers intended for seed sprout best in a light chamber in which the temperature does not fall below 35° or exceed 45°. Such conditions promote the formation of sturdy sprouts, which will have attained the right size by planting time.

Where large quantities of tubers have to be sprouted, it is advisable to construct or purchase special trays for the purpose. Many firms in South Lincolnshire specialise in the manufacture of these boxes, and they are so made that one can place the trays in tiers as high as the chamber in which they stand, and every tuber will receive sufficient light for proper sprouting. It is cheaper to purchase than to construct these trays; last year I purchased one hundred at 11d. each, f.o.r.; each tray was two-and-a-half feet long by one-and-a-quarter foot wide. I made an average calculation, which showed that one sprouting box will accommodate two stones of seed Potatos. Obviously such a calculation is only approximate, as much depends on the size of the tubers and whether they are round or kidney-shaped.

I think all gardeners are agreed that the sprouting of seed Potatos is not only beneficient but economically sound. In case any readers should be in doubt, I may state the reasons for my own advocacy. Sprouting results in an earlier crop, which is of considerable importance where first-early varieties are concerned; I consider that at least a fortnight is gained. The process is also helpful in the detection of tubers that may be affected by sprain. One of the effects of this malady is to paralyse completely, or in a measure, the functions of growth.

Any tubers that either refuse to sprout or make very weak sprouts should be rejected and thus prevent waste of ground. Further, sprouting often assists the grower to rogue his stock before planting, for certain varietal characteristics reveal themselves in the sprout. Finally. sprouting promotes an even foliage growth. This is a decided advantage, because it saves the naturally weak members from being overwhelmed by the strong. *Geo. H. Copley, N.D.H.*

HOME CORRESPONDENCE.

[The Editors do not hold themselves responsible for the opinions expressed by correspondents].

Perpetual-flowering Carnations.—In reply to Mr. H. Howard Grace's letter (p. 51), I have no difficulty in keeping down red spider by syringing Carnations summer and winter with salt water, but more often with water only. I have never had occasion to use any of the specifics considered by many to be necessary in combating Carnation diseases. My predecessor in one situation had been using a certain specific by the gallon, judging from the many empty jars I found, but all it had done, so far as I could see, was to take the paint off the iron-work and set up corrosion. I found it very difficult to keep down red spider even by syringing twice a day, until the iron work was scraped and repainted. When syringing to keep down red spider, the water must be applied with force; mere spraying is useless, therefore all plants should be staked securely. I have received very poor plants from certain trade growers, and in one batch ordered very few were true to name. I use artificial heat up to 55° in winter, provided there is enough piping to raise it to that figure without unduly heating the pipes, but the top ventilators are never entirely closed except in frosty weather. When a fairly high temperature is promoted, the blooms are of full size, but they are weak at the neck and have to be wired for use in vases: only such stiff-stemmed varieties as Baroness de Brienin will stand up under such circumstances without wiring. I did not mean to imply in my last note that artificial heat was unnecessary. *Grigor Roy, Cobham.*

Does Frost Kill Insects.—*Market Grower* is quite right, and "General Opinion" is, *as usual*, wrong! Because human beings coddle themselves in overheated dwellings and consequently "feel the cold," they suppose that Nature's children must also suffer in frost and snow because of the cold. Nature's children however, have been well brought up to exercise common sense in this matter, and their instincts lead them to protect themselves in a variety of ways during the winter. Consequently the harder the weather the better for them directly, because it keeps them dormant, and indirectly, because their chief enemies, the birds, are decimated by long, continued, hard weather. Normal winter weather, with snaps of unseasonable warmth, however, *may* awake some of the sleepers to activity to succumb to the first frost afterwards. *C. Nicholson.*

Zinc Rings for protecting plants from Slugs.—The problem of protecting certain plants from slugs is a troublesome one to many, and I am glad to see that Mr. Puddle refers to it in such a practical manner in his notes on "The Flower Garden," on page 41. For many years I have employed zinc rings for protecting plants subject to the attacks of slugs, and I can thoroughly agree with the statements by Mr. Puddle. I am particularly pleased that he has referred to the practice of cutting the upper edge at intervals and bending the cut part over so as to form a sharp, rough barrier, over which the slugs cannot pass. The use of zinc rings has been frequently advocated, but in many instances the writers have said nothing about cutting the upper edge in this way. This I discovered for myself after trying plain and perforated zinc, as recommended by many. The rings should be cut on the upper edge to about half-an-inch, as Mr. Puddle suggests, and the zinc bent down so as to form a sharp, rough obstacle to the passing of the pests. I may add, for the benefit of those who do not possess a soldering set or who cannot get their rings readily soldered, that tongues at one end of the zinc may be made to fit into incisions near the other, and that this method answers quite well. These zinc rings should, as Mr. Puddle states, be sunk about an inch deep in the soil, and it is also desirable especially with rock plants, that no part of another plant is allowed to hang over the ring, as this may afford a means of access to the guarded enclosure. *S. Arnott.*

Mildew on Vines and Roses.—I have not seen mildew on vines since the early nineties, when I was a journeyman in gardens near Warrington; Black Hamburgh, Muscat of Alexandria and Alicante were badly affected. Mr. Taylor's treatment with sulphur, as described in his book on vines, effected a cure; the only ill-effect which I remember was a small brown, hard speck on some of the berries. The fruit gave the owner satisfaction, who stated the berries were very sweet and of good colour. Regarding mildew on Roses, I have for several years, towards the end of May or early in June, when the small white fungus first appears, sprayed all my Rose bushes with a solution of sulphide of potassium (liver of sulphur), not more than two ounces to the gallon of water, applying the specific immediately the sulphide has dissolved. For a short time afterwards the smell left by the fungicide is not pleasant, but this soon disappears, and no unsightly marks remain on the foliage. *J. E. L.*

The Late Mr. James Whytock, V.M.H.—By the death, on the 31st January (as recorded in your issue of February 6), after a brief illness, of Mr. James Whytock, Scottish horticulture has lost one of its ablest exponents, and a link with a former generation of gardeners has been severed. He was one of the most likeable of men, and had a host of friends. Mr. Whytock, who was in his 81st year, retired from active service about five years ago, since which time he has resided in Edinburgh, and he maintained an active interest in horticultural matters up to the last. He was born at Tulliallan, Kincardine-on-Forth, and began his gardening career at Oxenfoord Castle, the residence of the Earl of Stair, near Dalkeith. He afterwards served at Dalkeith Palace, under the late Mr. William Thomson, and from there he went to Abbey Leix, in King's County, the residence of Lord de Vesci. In 1879 he was appointed gardener at Coollattin, the Wicklow residence of Earl Fitzwilliam, where he continued until he was called upon to succeed the late Mr. Malcolm Dunn at Dalkeith Palace, the Midlothian residence of the Duke of Buccleuch, in 1899, and during his term of twenty-one years there he passed many young gardeners through his hands, including Mr. C. Cook, now of Windsor. He was a member for several terms of the Council of the Royal Caledonian Horticultural Society, including the period of the 1905 International Show, and also of the Scottish Horticultural Association, of which he was president for three years, from 1908 to 1910. He was also president of the Botanical Society of Edinburgh in 1919 and 1920, and it was during his presidency that the new genus of Gesneraceous plants, Whytockia, was instituted and named in recognition of his services to horticulture. He was also a Fellow of the Royal Horticultural Society, from which he received the Victoria Medal in Horticulture in 1914, and a member of the Royal Scottish Arboricultural Society. He was awarded the Neill Prize in Horticulture by the Council of the Royal Caledonian Horticultural Society in 1906. Mr. Whytock is survived by Mrs. Whytock and by a grown-up family of four sons. *A. D. R.*

SOCIETIES.

ROYAL HORTICULTURAL.

February 9.—Following precedent there was a very good show at Vincent Square, on the occasion of the Annual General Meeting. Fruits were more extensively shown than of late, and the rich golden colour of the Oranges growing freely on the bushes, together with the collections of highly coloured Apples and the groups of spring flowers gave an impression of a genial sunny climate which was in welcome contrast to the cold and dreary out-of-door world. Orchids were shown extensively and the general floral exhibits included Primulas, Rhododendrons, forced shrubs, Carnations and Alpines.

Orchid Committee.

Present:—Sir Jeremiah Colman (in the Chair), Mr. Gurney Wilson (Hon. Sec.), Mr. R. Brooman White, Mr. C. J. Lucas, Mr. H. J. Pitt, Mr. S. W. Flory, Mr. A. Dye, Mr. F. K. Sander, Mr. H. G. Alexander, Mr. J. E. Shill, Mr. J. Cypher, Mr. Chas. H. Curtis, Mr. A. McBean, Mr. J. Cowan, Mr. H. H. Smith, Mr. J. Armstrong, Mr. Robert Paterson, Mr. E. R. Ashton, Mr. Stuart H. Low, and Mr. Fred J. Hanbury.

AWARDS OF MERIT.

Brasso-Cattleya Warnham Beauty. (*B.-C. Digbyano-Mossiae × C. Tityus*).—A magnificent hybrid with flowers of large size and substance. The sepals and petals are deep mauve and the lip deep purple at the apex, with purplish mauve side lobes and a yellow stain in the white throat. Shown by C. J. Lucas, Esq., Warnham Court, Horsham.

Cattleya Minnehaha (Trianae The Baron × Lady Rowena).—In this lovely hybrid the flowers are of beautiful form. The sepals and petals are white, the latter slightly fringed, broad and rounded; the lip is white, with a frilled margin and a soft orange-yellow throat. Six plants of this fine Orchid were exhibited. Shown by Baron Bruno Schröder (gr. Mr. J. E. Shill), The Dell Park, Egham.

Cymbidium Miranda var. Lemon Queen. (*Lowio-grandiflorum × Alexanderi*).—In this large-flowered form the sepals and petals are pale greenish lemon colour with a few small brown dots at the base of each; the lip is white with deep red brown spots. The plant exhibited carried fourteen splendid flowers. Shown by Sir George Holford, Westonbirt.

Cymbidium Flamingo var. White Wings (*Alexanderi × Merlin*).—An exquisitely beautiful variety with white sepals and petals, and white lip stained with purplish red. In form and size this is also a fine variety. Shown by Sir George Holford (gr. Mr. H. Alexander), Westonbirt, Tetbury.

Odontoglossum Gatton Prince (*Gatton Princess × Gatton Emperor*).—A distinct hybrid with shapely flowers of deep maroon-red colour, tipped with white, and with white bases to the three upper segments; lip maroon-red edged with white; disk yellow. Shown by Sir Jeremiah Colman, Bt. (gr. Mr J. Collier), Gatton Park, Reigate

Odontonia Nesta (*Oda. Gladys × Odm. St. George*).—A handsome Orchid with flowers in which every part is well displayed. The sepals and petals are rich chocolate-red with a few white or pink markings; the broad lip is similarly coloured, and there is a semi-circular, irregular line, of white towards the base of the lip as though the plant was endeavouring to reproduce the "mask" of a Miltonia. The apex of the lip is white, pink tinted, and shaded with red. Shown by Messrs Charlesworth and Co.

Odontoglossum Alvara (*Ithone × Clovis*).—A richly hued hybrid of fine size and substance. A narrow margin of white surrounds the deep chocolate-red of the sepals and petals; the upper sepal is also tipped with white, but the lower sepals have a pinkish apex. Lip white with numerous chocolate-red markings and a yellow disk. Shown by Messrs. Charlesworth and Co.

Groups.

Messrs **J. and A. McBean** set up a large and effective display in which lovely spikes of Odontoglossums, Cymbidiums, and Odontiodas were the chief features. The group was beautifully arranged and the plants well grown. Among the many handsome subjects shown, we were specially attracted by the brilliant Laelio-Cattleya Smilax var. Prince of Wales, Cymbidium Floryi, Cattleya Empress Frederick, Odontoglossum Vega—a fine cross between O. King Arthur and O. Midnight, O. Pyramus, O. Rosina and O. Marcus, the last a cross between O. Jasper and O. Harryanum. Odontioda Lambeauiana, O. Diana, Lycaste Skinneri alba and Cymbidium Alexanderi were other good things in this group.

Messrs. **Sutton Brothers**, Hassocks Nursery, entirely new exhibitors and a firm of quite recent foundation, contributed a group of Orchids that proved of general interest. Cymbidiums were used as a background for Dendrobiums of the D. nobile type, Odontoglossums, Odontiodas and Cypripediums. A central feature consisted of two specimens of the old Odontoglossum triumphans, each carrying a pair of spikes of bright and elegant flowers. Other conspicuous subjects were Oncidium Papilio, Odontioda Bradshawiae, Cypripedium Euryades, New Hall Hey var. Laelio-Cattleya Monica, the charming Sophro-Laelia Marriottiana, Brasso-Laelio-Cattleya Rumania with a light yellow area on the large lip, and a large plant of Odontocidium Edwardii.

Cypripediums formed the greater part of the group submitted by Messrs. **J. Cypher and Sons**, and of these useful subjects we noted capital examples of C. Cupid, C. Elsie magnificum, C. Alcibiades, C. Bridgei, C. Queen of Italy, and C. Hercules, the last betraying its descent from C. hirsutissimum. Cymbidiums and Calanthes were well shown, and a plant of the rare Masdevallia gargantua created a great deal of interest.

Miltonia Wm. Pitt was finely shown in Messrs. **Charlesworth and Co.**'s group, but there were many other fine things, notably Dendrobium Gatton Monarch, of fine size and colour, Cattleya Blackii with half-a-dozen of its chaste flowers, Lycaste Balliae superba, Odontoglossum Minatour, O. Miguelito, Cattleya Zephyr and C. Tityus. There were in addition many other excellent plants, all well grown and carrying splendid flowers.

Messrs. **Sanders** contributed such interesting Orchids as Angraecum sesquipedale, Odontoglossum bictoniense, the bright Laelia Icarus (flava × cinnabarina), Cymbidium Erica Sander var. Zephyr, the big Brasso-Laelio-Cattleya Nadir, Calanthe Butterfly and the rare Dendrobium aqueum

Messrs. **Cowan and Co.** submitted a group consisting largely of Cypripediums and these included the showy C. St. Kentigern, C. bingleyense, C. Commodore, C. Carola and the pale C. Tom Worsley. Oncidium Cavendishianum, figured in the background, with examples of Cattleya Clotho, Odontioda Murillo—lovely colour, and Dendrobium Austinii (Ainsworthii × Cybele nobilius).

Two dozen charming plants of Epidendrum Endresio-Wallisii made a central feature in the group from **H. T. Pitt**, Esq. (gr. Mr. Thurgood), Rosslyn, Stamford Hill. With these were associated Sophronitis grandiflora, Cymbidium Lady Colman, and the handsome Odontoglossum harvengtense, Pitt's var.

Messrs. **Stuart Low and Co.** had a corner group in which Rolfeara Charm, with light flame-coloured flowers, was the centre of attraction; Cattleya Percivaliana var. Little Gem, Laelio-Cattleya Radina, Odontoglossum scintillans, and Sophro-Cattleya Saxa were all finely shown.

Sir **Jeremiah Colman** (gr. Mr. J. Collier), Gatton Park, Reigate, showed a few charming Orchids, including a fine specimen of Brasso-Cattleya Gatton Lily var. magnifica, with nine fine flowers (Cultural Commendation). Messrs. **A. J. Keeling and Son** and Messrs. **Black and Flory** also exhibited a few Orchids, and there were numerous single plants submitted for the judgment of the Committee.

Floral Committee.

Present: Section A.—Mr. Henry B. May (in the Chair), Mr. J. F. McLeod, Mr. Arthur Turner, Mrs. E. M. Wightman, Mr. H. J. Jones, Mr. J. M. Bridgford, Mr. D. Allan, Mr. Wm. Howe, Mr. M. C. Allwood, Mr. W. H. Page, Mr. E. R. Janes, Mr. F. Streeter, Mr. F. J. Cousins, Mr. D. Ingamells, Lady Beatrix Stanley, Mrs. H. L. Smith, Mr. James B. Riding, Mr. Hugh Dickson, Mr. A. Vasey, Mr. W. B. Gingell, Mr. Mark Fenwick, Mr. G. W. Leak, Mr. D.B. Crane and Mr. Chas. E. Pearson.

Section B.—Mr. Chas T. Musgrave (in the chair), Mr. James Hudson, Mr. G. Reuthe, Mr. E. H. Wilding, Mr. C. Williams, Mr. Amos Perry, Mr. L. R. Russell, Mr. G. Yeld, Mr. A. Bedford, Mr. F. G. Preston, Mr. W. G. Baker, Mr. W. J. Bean, Mr. G. W. E. Loder and Mr. R. C. Notcutt.

Awards of Merit.

Cyrtanthus lutescens.—This interesting and attractive bulbous plant was introduced from the Cape of Good Hope in 1836, and for a time was in general cultivation, but latterly it has become a somewhat rare plant, outside botanical gardens. It bears an umbel of four to six long, narrowly tubular, yellow flowers on a green stem about twelve inches high. The narrow linear leaves are dark green in colour. Shown by Mrs. **Frank Platt-Barlow**, 50, Hans Place, London, S.W.

Lindenbergia grandiflora.—An herbaceous and sub-shrubby plant which is common on the foothills of the Himalaya from Simla to Bhotan at elevations of two thousand feet and upwards. It is a useful greenhouse plant for this country and well grown examples, similar to that shown, are quite decorative. The ovate, coarsely toothed leaves are of soft texture, hairy and somewhat pointed. The yellow flowers, which are borne in terminal, leafy spikes are about an inch across and have much the same general structure as those of the genus Mimulus. Shown by the **University Botanic Gardens**, Cambridge.

Mutisia Clematis.—This fascinating and, when in flower, gorgeously beautiful climber was the subject of a coloured supplement to the *Gardeners' Chronicle* of November 29, 1913, which shows the flowers with their bright red, almost scarlet, colour. Probably owing to its early flowering the colour of the flowers shown was paler than usual, but even so they were very showy and attractive. Mutisia Clematis, a native of the higher ranges of the Andes of South America, is hardy on occasion but usually thrives best in a cool and sunny greenhouse. In the warmer parts of the country it is occasionally seen as a wall plant. It is a vigorous climber bearing pinnate, Vetch-like leaves and oblong cylindrical flower heads all felted with silvery, silky hairs. The ray florets are about two inches long and of dazzling colour. Shown by Lt.-Col. **Messel**.

Rhododendron Pink Delight.—A compact, well-formed truss of large pips of paper-white colour, margined with shades of pale pink. Shown by Messrs. **R. Gill and Son**.

Other Novelties.

An interesting collection of flowers was sent from La Mortola, the Italian garden of Mr. Cecil Hanbury. Unfortunately these had been delayed a fortnight in transit but many specimens retained their beauty and attractions. The exhibit included flower spikes of Aloe natalensis, A. spinossisima and sprays of Nandina domestica bearing exceptionally large quantities of bright berries. Although it did not find favour with the Committee, Primula sinensis stellata Symmetry, shown by Messrs. **Sutton and Sons**, is a very beautiful variety. The flowers, which are freely produced, large and substantial, of a rich pink colour with a narrow carmine zone and a pale primrose eye. Mr. **C. T. Musgrave**, Hanscombe Place, Godalming, showed Snowdrops of great interest in pots. These were all large-flowered kinds and included Galanthus Elwesii, G. nivalis, G. Imperati, Bitton variety, and G. byzantinus.

Groups.

Messrs. **Sutton and Sons** set up an admirable collection of greenhouse Primulas. This was of splendidly grown plants and set in fresh green moss laid out in the form of a series of dells. The inception was admirable and the exhibit attracted a great deal of attention. The stellata varieties were freely used and included Symmetry, a lovely rose-pink variety, Little Blue King and Duchess. Amongst the many good, large-flowered varieties were Intensity, of rich colour, Etna, a dazzling red which also has dark foliage, and Giant Royal White.

Adjoining their Carnations, Messrs. **Stuart Low and Co.** staged some good Hippeastrums, Boronia elatior, Acacia Baileyana and a large batch of greenhouse Cyclamen. Their Carnations included excellent blooms of Sybil, of velvety, smoky, purple colour, White Pearl and Topsy. Amongst the many Carnations set up by Messrs. **Allwood Bros.** we especially noted Canadian Pink, of large size and good self colour; Cottage Maid, a pale blush pink with a darker centre; and Beauty of Durham, of vivid salmon-cerise colouring. Mr. **C. Engelmann** included Janet, Sheila Greer, Saffron, Laddie and Betty Lou in his collection of splendid Carnations.

Particularly good forced Roses were shown by Mr. **Elisha J. Hicks**, who set up large vases of Climbing Lady Hillingdon, Madame Butterfly, Clovelly, Mrs. Herbert Stevens and The Queen Alexandra Rose. Mr. **George Prince** exhibited large stands of graceful sprays of yellow Banksian and Fortune's Yellow Roses.

In a corner group Messrs. **Chaplin Bros.** had a group of well grown Camellias which included Princess Charlotte, white; Eugenie Messine, pink; Camille Aureliana, slightly deeper in shade; and Flora, white, of the double flowered varieties, while the singles were represented by Vesta, rose-pink; Waltham Glory, red; Apollo, crimson, and the Swan, white. A goodly group of Violets, chiefly of the large-flowered variety Princess Mary, was shown by Mr. **J. J. Kettle**.

Perhaps the most attractive amongst the various hardy shrubs were the Rhododendrons. Messrs. **R. Gill and Son** showed beautiful trusses of R. Cornubia, R. argenteum, R. Pink Delight and R. praecox and also staged a good collection of their admirable strain of St. Brigid Anemones. Brightly coloured Rhododendrons were also shown by Mr. **G. Reuthe**, who included trusses of R. Mrs H. Shilson, R. Cornubia, and R. barbatum in his miscellaneous exhibit. Berberis hyemalis, Garrya elliptica, Iris reticulata, var. Cantab, and many alpines were also of merit

Forced bushes of Wistaria, Lilacs, Azalea mollis and A. indica were tastefully arranged by Messrs. **L. R. Russell, Ltd.** Viburnum Carlesii, Prunus Davidiana alba, and other shrubs were associated with alpines by Messrs. **Bakers, Ltd.**, while Messrs. **Wallace and Co.** had a good selection of dwarf Conifers, suitable for the rock garden, with Erica King George, Daphne Mezereum album, and a good bush of Rhododendron moupinense.

A well-arranged rock garden was planted by Messrs. **Wm. Cutbush and Sons** with Wistarias, Azaleas of several types, Pieris (Andromeda) japonica, Erica carnea, and many alpines of value. In a low rock garden Mr. **F. G. Wood** set out Snowdrops, Muscari, Saxifrages, and Primroses, making a pleasing feature. Messrs. **Waterer, Sons and Crisp** planted in fibre many little batches of Crocus, Iris reticulata, I. sindpers, Narcissus triandrus albus, N. cyclamineus, and other appropriate plants.

Saxifrages, such as S. oppositifolia major, S. Haagii, S. Irvingii, S. Wm. Marshall and S. Riverslea, were well shown by Messrs. **M. Prichard and Sons**. Messrs. **J. Cheal and Sons** showed pans of Crocuses, Muscari, Iris reticulata, Dicentra spectabilis and Saxifrages, with Primroses in the background. A neat rock garden was shown by the Misses **Hopkins**.

The Rev. **H. R. Meyer** (gr. Mr. J. P. Izzard), Walton-at-Stone, Herts, showed many plants of Iris reticulata set in fibre, making a very attractive display. Mr. **C. Elliott** exhibited Saxifraga Burseriana Gloria, S. oppositifolia Salomonei, Primula Winteri and other alpines.

Particularly well flowered bushes of Forsythia spectabilis, with Ericas and Alpines were staged by Messrs. SKELTON AND KIRBY. Messrs. R. TUCKER AND SONS showed shrubs and Saxifraga Brookside, S. Burseriana sulphurea and S. Mrs. Leng of considerable beauty.

A fascinating collection of the dwarf early Irises was well arranged by Messrs. BARR AND SONS. The chief varieties were I. pumila cœrulea, I. Louise, I. Standard, I. Socrates and I. unguicularis alba with a large batch of I. reticulata of intense colour. They also included some uncommon Hellebores in their exhibit.

The exhibits of paintings included several of exceptional interest. Mrs. E. M. PHILLIPS exhibited a large collection of excellent paintings of West Indian flowering trees and plants. Miss C. G. TROWER had over sixty faithful drawings and water-colour paintings of native members of the order Rosaceae, and Miss FRANCES BUNYARD showed splendid paintings of Apples and Plums.

Narcissus and Tulip Committee.

Present: Mr. George Monro (in the Chair). Mr. Charles H. Curtis, Mr. Peter R. Barr, Mr. John W. Jones, Mr. G. W. Leak, Mr. F. Herbert Chapman, Mr. Rollo Meyer, Mr. H. B. May, Mr. G. Churcher and Mr. A. Simmonds (Sec.).

The Chairman made feeling reference to the loss sustained by the death of the Rev. J. Jacob, an old and greatly valued member of the committee; it was agreed that a letter of sympathy be sent to the sister of the deceased gentleman.

In the centre of the hall Messrs. J. CARTER AND CO. had an excellent collection of early-flowering Tulips set out in circles each with a central plant of profusely-flowered Prunus triloba, and surrounded by a band of contrasting varieties. The many valuable sorts included Grand Duc, Prince of Austria, Fred Moore, Red Admiral, General de Wet and Rising Sun.

Fruit and Vegetable Committee.

Present; Mr. C. G. A. Nix (chairman). Mr. W. Poupart, Mr. J. Cheal, Mr. P. C. M. Veitch, Mr. H. S. Rivers, Mr. J. Harrison, Mr. G. F. Tinley, Mr. T. Pateman, Mr. E. Laxton, Mr. W. Lobjoit, Mr. A. Metcalfe, Mr. H. Prince, Mr. E. Beckett, Mr. F. Jordan, Mr. W. H. Divers, Mr. H. V. Taylor, Mr. E. A. Bunyard, Mr. A. N. Rawes and Mr. P. D. Tuckett.

Several seedling Apples were submitted for award and one or two were of very promising appearance, but lacking in quality. Messrs. W. AND J. BROWN, Stamford, exhibited a seedling Apple named Oakham Seedling, a very showy fruit, very much like New Bess Pool.

Mr. F. G. GERRISH, O'Keys Farm, Fernhill Heath, Worcester, showed some excellent fruits of Lord Hindlip Apple which had been stored in clamps like Potatos. Mr. Gerrish stated that this variety is grown extensively in the Worcester districts and the trees this year bore very large crops. Although of sound appearance, the clamped fruits appeared to have lost a considerable amount of flavour. Much the finest Apple submitted was Laxton's Superb, which has already received the R.H.S. First Class Certificate.

GROUPS.

Two excellent collections of Apples were staged; the largest, comprising one hundred varieties, was shown by Mr. J. C. ALLGROVE, Middle Green, Langley, Slough, and the other by Messrs. G. BUNYARD AND CO., LTD., Maidstone, who exhibited sixty-two varieties. Both exhibits were very attractively displayed: Mr. Allgrove's was decorated with Palms and other foliage plants and included such excellent varieties as Blenheim Pippin, Rival, Cox's Orange Pippin, Beauty of Kent, Belle Pontoise, Hoary Morning, Ball's Pippin, Gabalva, Winter Peach, Cornish Aromatic, Encore, Newton Wonder, King of Tomkin's County, Blue Pearmain, Chas. Ross, Gascoyne's Seedling, Lord Burghley, Ontario and William Crump. The finest varieties in Messrs. Bunyard's collection were Belle de Boskoop, Blue Pearmain, High Green Blenheim, Cornish Aromatic, Sir John Thornycroft, Edward VII., New Bess Pool, Easter Orange, Bowhill Pippin, Lord Hindlip, Allington Pippin, Braddick's Pippin, Adam's Pearmain, Cobham, Ballinora, Calville Rouge's, King's Acre Pippin, Wagener and Cockington.

An exhibit of unusual interest was shown by CECIL HANBURY, Esq., a collection of Citrus fruits from his garden at La Mortola, Ventimiglia, Italy. The collection was dispatched from La Mortola for the meeting on the 26th ult., but unfortunately, as happened last year, it arrived too late. Because of the delay the exhibit was robbed of much of its interest, as the stems and foliage attached to the fruits had dropped and obviously the fruits themselves were not in such fresh condition. The collection included fifty-one species and varieties of the Citrus family. One of the best of the true Oranges was Citrus Aurantium var. sinensis "Arancio San Michele Di Teneriffe." The sweetest variety was Citrus Aurantium var. sinensis "Arancio Turco Dolcissimo" a practically seedless Orange, and others shown included Citrus Aurantium var. sinensis "Arancio Vaniglia," an aromatic and sweet variety with a thick skin; Citrus medica var. Limoni "Limone in Arancio," a Lemon without seed pips with a very thin skin; Citrus medica var. Limette "Limone Dolce," a sweet Lemon; C. nobilis Mandarin, sweet and juicy; and C. nobilis Tangerine, a Tangerine of distinct flavour. In addition, a collection of ornamental Gourds was included, the most interesting being Cucurbita Pepo var. pyriformis "mamellata," which is not a free setting sort, but which will give good results when hand-fertilised; Cucurbita Pepo var. cucurbitella "striata lutea," a most difficult variety to keep true and therefore should be grown isolated; and Cucurbita Pepo var. ficifolia, a Fig-leaved Gourd used for making jam. It is a strong grower, sets freely and keeps fresh for two years.

Messrs. T. RIVERS AND SON, Sawbridgeworth, showed Oranges fruiting in pots and numerous gathered fruits of Oranges, Lemons, Citrons, Limes, Shaddocks, etc. The trees were excellent specimens, and in most cases they bore flowers as well as fruits. The best of the Oranges, from a superficial view, appeared to be Long Orange, Egg Orange, Excelsior and Thomson's Improved Navel.

ANNUAL MEETING.

THE Lecture Hall was packed with Fellows on the occasion of the Annual General Meeting held at 3 p.m. Lord Lambourne presided, and was supported on the platform by Sir William Lawrence, Sir George Holford, Mr. E. A. Bowles, Mr. E. A. Bunyard, Mr. George Morris, Mr. G. W. Leak, Hon. H. D. McLaren, Mr. T. Hay, Mr. C. Nix, Mr. W. A. Bilney, Dr. Hill, Mr. C. T. Musgrave and Mr. A. Simmonds (Assistant Secretary).

The usual formalities were disposed of quickly, and one-hundred-and fifty-two new Fellows, seven Associates and five Affiliated Societies were elected *en bloc*.

Lord Lambourne moved the adoption of the Report of the Council and Accounts for 1925, and reviewed the work of the year. He observed that a year ago the Society had 21,000 Fellows, and since then 4,000 new Fellows had been admitted. The Council had under careful consideration the selection of a Secretary to fill the vacancy arising owing to the lamented death of Mr. W. R. Dykes. Keen attention was paid to Lord Lambourne's remarks concerning the new hall, the building of which, he considered, would be one of the most important items of business the Council ever had to consider. Progress was being made with the plans, but it had been slow because the approval of several authorities had to be obtained, and this had, on several occasions, led to such considerable alterations as to necessitate re-planning. He assured the Fellows that the new hall would be admirably lighted, well-heated and amply ventilated; the building would include rooms for the accommodation of the Standing Committees, and these would be so arranged that they would provide the necessary accommodation for those who hired the hall for meetings and exhibitions. In conclusion, Lord Lambourne paid high tribute to the work of the retiring members of Council, Mr. E. A. Bowles, who would become a vice president of the Society and remain as chairman of the Narcissus and Tulip Committee; Mr. H. B. May, who had worked on the Council for nearly a quarter-of-a-century and who would still continue as Chairman of the A Section of the Floral Committee; and Mr. C. T. Musgrave, formerly Treasurer, whose legal knowledge had been of immense service, and who would remain Chairman of the Housing Committee, which was dealing with the new hall. Lord Lambourne also expressed the indebtedness of the Council and Fellows to the staffs at Wisley and Vincent Square, and referred in very appreciative terms to Mr. Frank Reader's thirty-six years of continuous service as cashier.

Sir William Lawrence, Treasurer, dealt with the accounts and also referred to the new hall. He did not know what the cost would be, and although he had a figure in mind, he did not propose to state it. The Society was, however, in a happy financial position in having about £138,000 in investments and in reserve; with this sum and the spreading of certain capital expenditure over a series of years, he felt that, if the present success of the Society continued, the large expenditure necessary for the new hall need not frighten anyone.

Mr. C. T. Musgrave, by means of a model, demonstrated the method of lighting the new hall. He hoped the completed plans, approved by all the authorities concerned, would be ready in a few weeks, and that excavations on the site (behind the present hall) would commence in July. Mr. Musgrave stated that whereas the present available space for exhibitions was about 10,000 square feet, the new hall would provide a total available area of 21,000 square feet.

The motion was then put and carried, and as the nominations for President, Vice-Presidents, Members of Council, Auditors, etc., were no more than sufficient to fill the several positions, no voting was needed, consequently the President declared them all duly elected. The new members of Council are Mr. M. Fenwick, Mr. G. W. E. Loder, and Mr. W. R. Oldham.

Lord Lambourne then presented the Victoria Medals of Honour in Horticulture—Mrs. Dykes received the one awarded to her late husband; Mr. Dick's son received the one awarded to his late father; in the absence, owing to failing health, of Mr. George Mount, his medal was handed to his son, Mr. Harry Mount; this left Mr. Joseph Rochford as the only one of the four to personally receive the coveted honour. The Lawrence Medal was presented to Mr. E. A. Bunyard; the Sander Memorial Medal to Sir George Holford; the big Cory Cup to Mr. E. A. Bowles, and the Loder Cup to Mr. W. J. Bean; Mr. E. H. Wilson and Mr. W. P. Thomson, to whom Gold Veitch Memorial Medals had been awarded, were not present to receive them.

Mr. R. Fife then proposed "That this General Meeting is of opinion that the situation and soil of Wisley render it unsuitable for a Trial Garden, and remits to the Council to endeavour to procure suitable land in a place more easily accessible to visitors and to report to a future meeting." Mr. Fife spoke at considerable length, and expressed the opinion that the Trials at Wisley were practically useless and the garden of little value except as a wild garden. He made no complaint concerning the staff or the conduct of the trials, but considered the soil and situation were so bad that no one could carry out effective trials of fruits, flowers and vegetables under the conditions prevailing. Mr. W. J. Chittenden seconded the motion, and Mr. C. Nix, who replied on behalf of the Council, pointed out that it was absurd to expect the Council to seriously consider the acquisition of a new Wisley and he stated that the National Dahlia Society had expressed approval of the Dahlia Trials (upon which Mr. Fife was especially severe) and had requested their continuance.

Although the Fellows gave Mr. Fife a perfectly courteous hearing and almost all of them remained to the close of his remarks, it was fairly obvious that the proposer had overstated his case, in short, he did protest too much, and so failed to secure for his proposal any other support than that of its seconder.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

Friday, January 22.—*Committee Present:* R. Ashworth, Esq. (in the chair), Messrs. C. Branch, A. Burns, D. A. Cowan, J. Evans, A. Keeling, E. W. Thompson and H. Arthur (secretary).

First-Class Certificate.

Odontoglossum illustrissimum var. rubrum.—A well-shaped flower of rich port wine colour; the broad, flat lip is tipped with a deep band of white. From Mrs. P. Smith.

Awards of Merit.

Cypripedium Pioneer var. punctatum (*Zoe* × *Desdemona*) and *C. Aureoma giganteum* (*aureum* × *Desdemona*). From Mrs. P. Smith.

Odontioda Ruth and Odontoglossum promerens var. albanense. From J. B. Adamson, Esq.

Cypripedium Evelyn Moore (*Lady Dillon* × *Gaston Bulteel*). From S. Gratrix, Esq.

Groups.

J. B. Adamson, Esq., Blackpool (gr. Mr. R. Taylor), staged a group to which a Gold Medal was awarded.

A Gold Medal was also awarded to S. Gratrix, Esq., Manchester (gr. Mr. C. Branch), for a group of Cypripediums in variety.

Obituary.

Dr. William Bateson.—We learn with intense regret of the death of Dr. William Bateson, Director of the John Innes Horticultural Institution. Apparently a heart attack followed bronchitis and after a brief illness he succumbed on Monday morning, February 8th. Horticulture has thus suffered a severe loss. In these days when many of us are troubled concerning the scientific aspects of our hobby or our profession the John Innes Horticultural Institution seemed the one bright spot where the enthusiasm and industry of the Director and his colleagues ensured that this country should be pre-eminent in the important part of genetics. Dr. William Bateson was born at Whitby in 1861 and was the son of the Rev. Dr. W. H. Bateson for many years Master of St. John's College, Cambridge. Educated at Rugby he gained a scholarship at his father's college and became a well-known figure in Cambridge for many years. As an undergraduate he was rather young in appearance, a little boisterous, and gained somewhat of a reputation among his fellow-students by the catholicity of his tastes; apparently lectures on all subjects, with the exception of mathematics, had their attractions for him, though he was ostensibly a science student. He specialized in zoology and was Balfour Student in 1887-90. Working at the anatomy and development of Balanoglossus, he became interested in variation and although he had been warned that the subject had been swept clean he travelled all over Europe to study what variations *did* occur, rather than what theoretically *might*. The results are to be found in his *Materials for the Study of Variation* (1894), which by many is regarded as a classic. It is in this work that he distinguishes between continuous and discontinuous variations. From then onwards variation and its ramification was his chief study. In 1900 biologists were startled by the "rediscovery" of Mendel's Law by de Vries. The story of how the results published by the Austrian abbot, Gregor Johann Mendel, in 1866, received no recognition until the practically simultaneous confirmation by de Vries, Correns and Tschermak, has often been told in these pages and elsewhere. Bateson now had a key to his vast accumulation of data, and became the foremost Mendelian. On the appearance of de Vries's paper he immediately gave an account of Mendel's results in a lecture to the Royal Horticultural Society on "Problems of Heredity as a Subject for Horticultural Investigation." (*Journal R.H.S.* XXI., 1900.) and edited a translation of Mendel's paper which appeared the following year. With additions, these were published in *Mendel's Principles of Heredity, a Defence* (1902) wherein he took to task the late Prof. W. R. Weldon who had criticised Mendel's results from a biometrical point of view. With a band of enthusiastic workers (Miss E. R. Saunders, the late R. P. Gregory, the late R. H. Lock, Prof. R. C. Punnett and others) he was able to accumulate an abundance of experimental facts capable of Mendelian interpretation. As President of Section D. (Zoology) at the Cambridge meeting in 1904 he gave a stirring address which had far reaching effects. In 1906 Dr. Batson was President of the International Conference of Genetics: the subject had now come into its own. The first Conference was held at London in 1897 and was a very small affair; the second at New York in 1902, and Dr. Bateson was one of the R.H.S. delegates and made there a very great impression; an idea of the third conference may be gained from the report published by the R.H.S. in 1907. These various activities resulted in 1908 in the founding of a chair of Biology at Cambridge with Dr. Bateson as the first Professor. His inaugural address (which was later published in book form) was a good augury of what the endowment was to accomplish. However, the following year, the Trustees of the newly formed John Innes Horticultural Institution offered him the Directorship. Realising that such a post gave him greater scope in every way, he accepted it. What appeared in our pages at the time (Vol. XLVI., p. 360) has been fully borne out. Merton has become the Mecca of all geneticists who visit this country, although pilgrimages to his garden at Grantchester were not unknown. Shortly before leaving Cambridge he published *Mendel's Principles of Heredity* (1909) and in 1913 his *Problems of Genetics* based on the Sillman lectures he had given at Yale in 1907. In 1910 he founded the *Journal of Genetics* in collaboration with his successor at Cambridge, Professor R. C. Punnett: of his several contribution to this *Journal* the last written in conjunction with his only surviving son Gregory, appears in the most recent number. Honours naturally came to him. Amongst others he was Fellow of the Royal Society; Hon. D.Sc. of Sheffield, Melbourne and Perth; V.M.H.; and Hon. Fellow of St. Johns. He was also twice Vice-President of the Linnean Society. During the visit of the British Association to Australia in 1914 he was President, and was President-elect of Section K (Botany) for the Oxford meeting to be held this year. He was foreign member of several foreign societies—American, Danish, Belgian, Swiss and Norwegian. An honour he greatly valued, was his appointment in 1922 as a Trustee of the British Museum. Dr. Bateson had a striking appearance and a striking personality. No one could have better carried the new ideas forward. A little inclined to use heavy guns in controversy he was sure to indulge in some *bon mot* which was remembered; and all were convinced of his regard for truth and his tenaciousness in thrusting it forward. Though impatient of fools he gained the sincere affection of all those who were closely associated with him. He was generous in the cause of science. As a lecturer he had his failures—but few were his equal in the more formal lectures which from time to time he was called upon to give; these such as "Evolution and Modern Doubts" delivered to the American Association for the Advancement of Science in 1921 often reached the general public. There would be few who would deny that William Bateson was our foremost British Biologist.

Rev. Joseph Jacob, M.A.—Floriculture has suffered a grievous loss by the death of the Rev. Joseph Jacob, who passed away during the night of Friday, the 5th inst., at the age of 67 years, His familiar stalwart figure and kindly manner will be sadly missed at floricultural gatherings in this country and in Holland and particularly so during this spring. Passionately fond of flowers and a wide reader of old floricultural literature, he achieved fame as a writer, but all his writings had a good foundation of practical knowledge gained as a cultivator and raiser. After his education at Uppingham, the Rev. Joseph Jacob went to Trinity College, Cambridge, where he took honours in natural science. In 1882 he was ordained to the curacy of Malpas, and two years later became vicar of Whitewell, Shropshire, where he spent the rest of his life—forty-one years, in the kindly conduct of his clerical duties and tending the plants and flowers he loved so well. He had a large garden and quite early in his career took up the cultivation of Daffodils, of which he became an acknowledged authority in this and other lands. As a member of the Royal Horticultural Society's Narcissus and Tulip Committee, his association with Daffodil and Tulip experts was a lengthy one, and if on occasion he irritated some people by his insistence upon the recognition of minute floricultural details, as did the older florists, everyone loved him because of his enthusiasm and sincerity. He was the author of *Daffodils* and also of *Tulips*, both books belonging to the Present Day Gardening Series, and he was chiefly responsible for the several issues of the *Daffodil Year Book* published by the R.H.S. at the request of its Narcissus Committee. It was a sad day for the vicar of Whitewell when eelworm so devastated his Daffodils that he had almost to abandon their cultivation and give up the serious work of raising Daffodils, which had occupied his attention for some time. The imminence of this disaster led him to propose that the R.H.S. should investigate the Daffodil disease, a proposal that led to the appointment of the late Mr. J. K. Ramsbottom and resulted in the discovery that the disease was due to the presence of eelworms and could be controlled by treating the bulbs with hot water. Scarcely less wide was Mr. Jacob's knowledge of Tulips, and to these flowers he gave great attention in recent years. Lachenalias and Freesias pleased and interested him, and of both these flowers he raised a number of excellent varieties. But although best known by reason of his work among bulbous plants, he kept in close touch with all advances in the production of Michaelmas Daisies, Delphiniums and other hardy flowers and contributed useful and critical writings upon these subjects to our pages. For two or three years past he had not been in good health, indeed his medical adviser had bidden him be careful and reduce his activities. This advice was difficult to follow by a man who would often read and write until the small hours of the morning. Recently he became seriously ill, and although his many friends hoped for a recovery, signs were not wanting that any untoward circumstance might hasten the end, therefore, when pneumonia supervened, there was little hope of his recovery. Like many another clergyman who has taken kindly to floriculture, he has left his mark on the horticultural world, and many besides those who knew him personally will mourn his loss.

Charles Lemaire.—We regret to note that M. Charles Lemaire, the Director of the Antwerp Colonial University, died at the end of January, at the age of sixty-two. A famous African explorer and an enthusiast for the Belgian Congo colonies, he was passionately fond of horticulture, and introduced into Europe a great many tropical fruit trees. He established a fruit nursery at Equateurville, and published a number of useful notes on the alimentary plants of the Congo.

GARDENING APPOINTMENT.

Mr. A. Thompson, previously at Spring Grove Gardens, Oughtibridge, as Gardener to R. Whitehead, Esq., Hargate Hall, Millers Dale, Derbyshire.

ENQUIRY.

I should be interested to know if any of your readers have any experience of rabbits eating Ericas I am about to plant a quantity of Ericas in woodland where rabbits are plentiful and do not wish to enclose with wire netting if this is not necessary. *T. C.*

MARKETS.

COVENT GARDEN, Tuesday, February 9th, 1926.

Plants in Pots, etc.; Average Wholesale Prices

(All 48's except where otherwise stated).

	s. d. s. d.
Adiantum cuneatum per doz.	10 0-12 0
—elegans	10 0-12 0
Aralia Sieboldii	9 0-10 0
Araucarias, per doz.	30 0-42 0
Asparagus plumosus	12 0-18 0
—Sprengeri	12 0-18 0
Aspidistra, green	36 0-60 0
Asplenium, per doz.	12 0-18 0
—32's	24 0-30 0
—nidus	12 0-15 0
Azaleas, '48's, each	4 0—6 0
Boronia megastigma, 48's, per doz.	30 0-36 0
Cacti, per tray —12's, 15's	5 0-7 0
Cinerarias, 48's, per doz.	18 0-21 0
Crotons, per doz.	30 0-45 0

	s. d. s. d.
Cyclamens, 48's in variety, per doz.	24 0-30 0
Cyrtomium	10 0-25 0
Daffodils, 48's, per doz.	18 0 21 0
Genistas, 48's, per doz.	24 0-27 0
Hyacinths, large white, 48's, per doz.	21 0 24 0
Marguerites, 48's per doz.	18 0-21 0
Nephrolepis in variety	12 0-18 0
—32's	24 0-36 0
Palms, Kentia	30 0-48 0
—60's	15 0-18 0
Pteris, in variety	10 0-15 0
—large, 60's	5 0-6 0
—small	4 0-5 0
—72's per tray of 15's	2 6-3 0

Cut Flowers, etc.: Average Wholesale Prices.

	s. d. s. d.
Adiantum decorum, doz. bun.	12 0-15 0
cuneatum, per —doz. bun.	10 0-12 0
Anemone fulgens, per doz. bun.	4 0-5 0
Arums (Richardias) per doz.	6 0-7 0
Asparagus plumosus, per bun., long trails, 6's,	2 0-3 0
med. sprays	1 6-2 6
short	0 9-1 3
—Sprengeri, bun long sprays	1 6-2 0
med. „	1 0-1 6
short „	0 4-1 0
Azalea, white, per doz. bun.	4 0 5 0
Bouvardia, white, per doz. bun.	15 0-18 0
Camellias, white per box, 12's	2 6-3 6
Carnations, per doz. blooms	3 0-4 0
Chrysanthemums white blooms, per doz.	4 0-8 0
—white spray per doz. bun.	30 0-36 0
Croton leaves per doz.	1 9-2 6
Daffodils, Golden Spur, single, per doz. bun.	12 0-15 0
—Henry Irving, per doz. bun.	8 0-9 0
—King Alfred, per doz. bun.	24 0-30 0
—Sir Watkin, per doz. bun.	12 0-15 0
—Victoria, per doz. bun.	12 0-15 0
—princeps, per doz. bun.	9 0-10 0
Fern, French, per doz. bun.	10 0-12 0
Forget-me-not, per doz. bun.	9 0-12 0
Freesia, white, per doz. bun.	2 6-4 6
French Flowers—	
—Acacia (Mimosa) per doz. bun.	15 0-18 0
—Anemone, De Caen, per doz. bun.	12 0-15 0
—Eucalyptus per pad	4 0-5 0
—Marguerites, yellow, per doz. bun.	4 0-4 6
—Narcissus, Paper White, per doz. bun.	3 0-4 0
—Narcissus Soliel d'Or, per doz. bun.	3 0 4 0

French Flowers—	s. d. s. d.
—Parma Violets, per bun.	3 0—4 0
—Ranunculus, scarlet, per doz. bun.	8 0-10 0
—carmine, per doz. bun.	7 0—8 0
—orange, per doz. bun.	24 0-30 0
Heather, white, per doz. bun.	10 0-12 0
pink, per doz. bun.	9 0-12 0
Hyacinths, large white, per doz. spikes	3 0-4 0
Iris tingitana, per doz. blooms	4 0-5 0
Lilac, white per doz. sprays	6 0-7 0
Lilium longiflorum long, per doz.	6 0-7 0
—speciosum album, long, per doz.	— —
—short, per doz.	3 6-4 6
—speciosum rubrum, long, per doz. blooms	3 6-4 0
—short, doz. blooms	2 6-3 6
Lily-of-the-Valley, per doz. bun.	18 0-24 0
Narcissus Grand Primo, per doz. bun.	5 0-6 0
—Narcissus ornatus, per doz. bun.	7 0-8 0
Orchids, per doz.	
—Cattleyas	24 0-30 0
—Cypripediums	5 0-7 0
Prunus triloba, per doz. bun.	2 6-3 6
Roses, per doz. blooms—	
—Richmond	9 0-15 0
—Madame Butterly	— —
Smilax, per doz. trails	2 6-3 0
Snowdrops, per doz. bun.	2 0-4 0
Stock, double white, per doz. bun.	4 0-5 0
Tulips, single—	
—white	18 0-24 0
—yellow	24 0-30 0
—scarlet	24 0-30 0
—pink	24 0-30 0
—terra cotta	18 0-24 0
—W. Copland, per doz. bun.	24 0-36 0
Tulips, double—	
—Couronne d'or, per doz. bun.	27 0-30 0
—Murillo, per doz. bun.	24 0-30 0
Violets	2 0-4 0

REMARKS.—More business has been done in this department during the past week; supplies have increased generally and prices have been on the downward direction. Best Daffodils are retaining their prices. The newest sorts from home-growers are Victoria and Sir Watkin; King Alfred is exceptionally fine in quality just now. Good supplies of the cheaper grades are coming from Cornwall, Guernsey and Scilly; these consist of Golden Spur, princeps and Henry Irving. The largest supplies of the season of Narcissus Soliel d'Or and Grand Primo arrived last week. Tulips still retain their excellent quality, especially the double varieties, which include Flamingo, Tea Rose, Double White, Double Yellow, Rosina and Double Pink. The first consignment of the red Darwin Tulips, Bartigon and William Pitt, came to hand last week; a few pink Darwin Tulips are also on sale. Prices of Arums (Richardias) have been greatly reduced owing to the increased quantities. Supplies of Lilium longiflorum are ample for present requirements, also of L. lancifolium rubrum. Of Roses, Columbia and Richmond are the most plentiful; these are blooms of the new crops, and their quality is improving gradually. Other subjects are similar to those listed last week, and they show little fluctuation in prices.

Fruit: Wholesale Average Prices.

	s. d s. d.
Apples, English, per ½-sieve—	
—Cox's, special	12 0-15 0
—best	6 0-10 0
Apples, Cooking—	
—Bramley's Seedling	4 0 8 0
—Lane's Prince Albert	4 0-6 0
—Newton Wonder	5 0-6 0
Apples, American	
—Jonathan	12 0-12 6
—Californian	12 0-14 0
—Oregon Newtown	15 0-18 0
—Spitzenberg	12 0-12 6
—Winesap	11 0-14 0
Apples Nova Scotia—	
—Fallawater	18 0-21 0
—Russet	26 0-35 0
—Stark	12 0-20 0
—Baldwin	12 6-22 0
Bananas	14 0-25 0
Chestnuts, Italian, per bag	18 0-26 0
Dates (Tunis), per doz. cartons	3 0-5 0
Grapes, per lb—	
—Colmar	2 6-4 6
—Almerian, per barrel	15 0-30 0

	s. d. s. d
Grapes, Belgian—	
—Muscats	5 0-8 0
—Black	1 6-2 6
—Gros Colmar	1 6-2 6
Grape Fruit,	
—Jamaica	20 0-25 0
—Isle of Pines	22 6-25 0
—Florida	27 6-32 6
Lemons, Messina, per box	10 0-30 0
—Malaga	18 0-22 0
Oranges—	
—Denia	12 6-25 0
—Jamaica	12 0-16 0
—Murcia	12 0-20 0
—Malaga	18 0-20 0
—Jaffa	18 0-20 0
—Palermo Bitters	11 6-12 6
—Sevilles	14 0-20 0
Pines	2 6-5 0
Pears, Californian—	
—Beurré D'Anjou, case	20 0-24 0
—Winter Nelis, ½ case	14 0-15 0
South African fruits—	
—Nectarines	6 0-10 0
—Peaches, per box	7 0 16 0
—Pears	3 6-6 0
—Plums	5 0-8 0
—Others	4 0-5 0

REMARKS:—Trade shows an improvement generally. Large Cooking Apples are in fair demand, and best quality vegetables are a good trade.

GLASGOW.

WHILE prices of cut flowers generally moved in an upward direction, business during the past week was somewhat slow. Daily supplies were none too plentiful as local growers are expecting a better range of values in the near future. Daffodils were dearer, King Alfred being worth 2/6 per dozen; Golden Spur, 2/- to 2/8; princeps and Sir Watkin, 1/8 to 2/-; ornatus, 1/- to 1/4; Narcissi special, 3/- to 4/-, and ordinary, 1/- to 2/-. The changes recorded in quotations of Tulips were mostly towards higher levels, and the averages for the week worked out as follow:—William Pitt, 1/9 to 2/-; Bartigon, 1/6 to 2/-; Le Notre, 1/6 to 1/9; Ibis, 1/2 to 1/5; Rose Tendre and Rosina, 1/6 to 1/8; Couronne d'Or, 1/2 to 1/4; Tea Rose, 1/- to 1/3; Brilliant and Prince of Austria, 1/ to 1/2; Flamingo, 1/-; Murillo special, 11d. to 1/1, ordinary, 8d. to 10d.; La Reeve, 8d. to 1/-, and Thos. Moore, 8d. to 10d. Hyacinths of all colours ranged from 8d. to 1/- for 3's. Madame Butterfly Roses made 12/- to 14/- per dozen. Lilium longiflorum (Harrissii) was cheaper at 7/- to 9/-, but Arums kept steady at these prices. Mimosa declined to 5/- and 7/- per cane, and Carnations were easier at 3/- to 4/- per dozen. Lily-of-the-Valley sold from 1/6 to 2/- per bunch; Smilax at 1/- to 1/6, and Asparagus Fern from 6d. to 1/2. Good quality Hyacinths in bowls averaged 2/- each.

A moderate turnover was reported in the fruit market. Oranges continued to appreciate in value, Jaffas making from 17/- to 19/-, and Valencia counts were also firmer 360's and 504's commanding 9/- to 10/6, 300's 10/- to 14/-; 240's and 200's, 14/- to 16/6; 420's, 12/6 to 16/ large ditto, 18/- to 28/-; and 214's, 14/- to 18/-. Mandarin improved to 1/2, and Seville Bitter Oranges were scarce round 14/6 per half-chest. Palermo Lemons, 300's, were worth 12/6 to 15/6, and Porto Rico Grape Fruit, 22/- to 24/-. Apples were offered in great variety and prices of certain brands were 1/- down at the following quotations:—British Columbia Delicious, 13/- to 15/- per case; Spitzbergen, 11/- to 13/-; Jonathan, 10/- to 12/-; Grime's Golden, 9/- to 11/6; Oregon Newtown, 13/- to 16/-; Spitz. 10/- to 12/6; Washington Delicious, 13/6 to 16/-; Spitzbergen, 11/- to 13/-; Newtown, 16/6 to 18/-; Grime's Golden, 10/- to 12/6; Winesap, 12/- to 14/-; Virginia York Imperials, 32/- to 35/- (per barrel); Ben Davis, 12/6 to 16/-; Ganos, 16/- to 20/-; New York Greening, 26/- to 30/- (barrel); Ben Davis, 12/- to 15/-, Nova Scotia Baldwin, 10/- to 15/-; Golden Russet, 16/- to 24/-. Canadian Baldwin, 22/- to 25/- (barrel), and Greening 28/- to 32/-. South African fruits were in fair demand Peaches making from 5/6 to 7/6; Pears, 4/6 to 6/6; and Plums, 5/6 to 9/-. The price of Winter Nelis Pears was unchanged. Gros Colmar Grapes remained steady at 3/- to 3/6 for English; 1/8 to 2/6 for Dutch; and 2/6 to 3/6 for Scotch. Pines averaged 5/- each.

In the vegetable section, Sea Kale ranged from 2/3 to 2/9; Sprue, 1/- to 1/3; Endive, 3/- to 4/-; French Beans (Madeira), 4/- to 5/6; forced Lettuces, 1/6 to 1/9 out-door Lettuces, 3/6 to 4/- per dozen.

ANSWERS TO CORRESPONDENTS.

GARDENER'S NOTICE TO QUIT.—*O. G. W.* It has been held by the High Court that a head gardener is to be regarded as a domestic servant, and must give or receive a month's notice. There is no reason why an employé should not obtain another situation before giving notice provided he gives a proper notice afterwards, but should he not serve throughout the period of such notice he will be liable in damages to his employer.

MALE AND FEMALE CHRYSANTHEMUMS.—*P. Cheeseman.* All Chrysanthemums have hermaphrodite and female flowers in one bloom. A wild species has all the ray florets female. In semi-double and double cultivated Chrysanthemums the rays or outer florets are greatly multiplied, and all these are female. The centre of the flower of the wild plant consists of a great number of small yellow florets with four or five teeth to the corolla, and all these have the male and female organs present, except one here and there that may be imperfect owing to crowding. In a perfectly double flower it is difficult or impossible to find these hermaphrodite or perfect florets; but if you want to cross them or to get seeds grow some plants in pots, stop them two or three times during the season, give them no feeding but starve them in order to get an open centre or eye, when perfect florets with pollen will be found. Clip away the rays to half-an-inch or so from the base. Look for the female organs in the ray florets, namely, a very short style with two short arms at the top. In due time when the central florets come into bloom, you will be able to find the yellow pollen which may be transferred with a camel-hair brush to the central as well as the ray florets of some other variety you wish to cross. Clip away the rays of all blooms upon which you wish to operate.

NAMES OF PLANTS.—*A. P.* Fittonia Pearcei. The Cypripedium is probably a form of C. Little Gem (Baron Schröder × Harrisianum) The flower is rather larger than the original, but is similar in other respects. *H. P. W.* Probably Begonia maculata. *B. F. D.* Bignonia venusta, a native of Brazil, but introduced to many tropical and sub-tropical countries, where it is grown extensively. It is not common in this country except in botanic gardens. *L. C.* Lonicera Standishii.

Communications Received.—W. McC.—A. T. H.—H. W. M.—Lilium—W. R. B.—P. W. S.—D. S.—G. C.—J. K.—C. H.—A. H.—A. W.—H. V.—E. B.—N. G. H.—A. A.—J. C.—W. H. J.—W. C.—G. B.—W. L.—C. H.—L. P.

CATALOGUES RECEIVED.

H. SHOESMITH, JUNR., Mayford, Woking, Surrey.—New and rare Chrysanthemums.
OLIVER AND HUNTER, Moniaive, Dumfriesshire.—Hardy plants.
JOHN GOLDING, Fordham, Ely, Cambs.—Flowers and Fruit Trees.
CLARENCE ELLIOTT, LTD., Six Hills Nursery, Stevenage, Herts.—Seeds.
PERRY'S HARDY PLANT FARM, Enfield, Middlesex.—Seeds, bulbs.
R. WALLACE AND CO., LTD., Tunbridge Wells.—Bulbs.
H. H. MAW AND SONS, Friarwood Nurseries, Pontefract.—Greenhouse plants, hardy plants, etc.
ABBOTT BROS., Southall, Middlesex.—Sanctuary Boxes for birds' nests.
C. ENGELMANN.—Saffron Walden, Essex. Carnations.
GODFREY AND SON, Exmouth, Devon.—Chrysanthemums.

Foreign.

L. FERARD, 20-22, Rue de la Pépiniere, Paris.—Seeds.
H. CORREVON, Floraire, Chene-Bourg, Geneva.—Seeds.
O. M. PUDOR, Puyallup, State of Washington, U.S.A.—Seeds.
ANTHONY C. VAN DER SCHOOT, LTD., Hillegom, Holland.—Bulbs and Plants.
DUMETZ, BROCCO AND GUIHENEUF, 129, Faubourg Saint-Denis, Paris.—Lilium candidum (Wholesale.)
PETER HENDERSON AND CO., 35, Cortlandt Street, New York.—Seeds.
WILHELM PFITZER, Stuttgart.—Seeds.
HAAGE AND SCHMIDT, Erfurt.—Seeds.
F. C. HEINEMANN, Erfurt.—Seeds.

THE
Gardeners' Chronicle

No. 2043.—*SATURDAY, FEBRUARY* 20, 1926.

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Dendrobium Gatton Monarch.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 40·0.

ACTUAL TEMPERATURE—
The Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, February 17, 10 a.m. Bar. 29·8. Temp. 46°. Weather, Bright.

William Bateson. By the death of Dr. William Bateson (as recorded in our issue of February 13) the world has lost one of its most distinguished men and the sciences which he expounded have been deprived of a great leader. His friends, and they were many, have sustained a yet severer loss. To them his friendship—a little aloof, as it must be when great men give friendship to lesser ones—was a source of inspiration. For no man knew Bateson who was not the better for knowing him. In his search for knowledge and in his love of truth there was, it is true, a certain ruthlessness which might repel those who cared for these virtues less strenuously than he did. And those who prefer the prophets to prophecy smooth things might be startled by his outspokenness. In his direct glance there were not only a grave fearlessness and a bright enthusiasm, but kindness was also there. For Bateson combined in an unique way qualities which rarely meet in men cast as he was in the heroic mould. He loved truth, but he cared also for the good things of life, pictures and books, and fun and friends. The life which he led, when—after seeking in vain the clue to the mysteries of evolution along the well-worn tracks of embryological science—he turned to the study of variation, seemed to have invested him permanently with a habit of loneliness. But it was only the loneliness of preoccupation. Pioneers must perforce be solitary. And so for many years he went his way—as though inspired by that hard saying that "science is measurement"—noting, measuring and recording the range of variation in living things. Meanwhile the biologists went on along the usual high roads of discovery, leaving Bateson straying in these neglected and tangled by-paths. But presently he came back and startled them by publishing a massive tome, *Materials for the Study of Variation*, to which he added a brilliantly written preface and in which he declared on irrefragable evidence that nature, far from jogging along the evolutionary way by imperceptible paces, is of a more joyous habit and is always apt to skip and jump. In these discontinuities of variation Bateson predicted would be found the starting points of the evolution of new species. Controversy, which now seems lifeless, but which played a vital point in the progress of biology, sprang up around these views and Bateson proved himself a bonny fighter. But though he hit hard the wounds he gave soon healed, for the weapons he used were clean. He was not one of those of whom Sir Thomas Browne speaks as not being worthy to testify to truth. Then suddenly Mendel's immortal researches were rediscovered and Bateson saw in them the clue which he had sought so long. Thenceforth throughout his life he devoted himself to the experimental study of heredity, for which with his usual felicity of expression he coined the name "genetics." Of his many discoveries there is no need to speak now in detail. but none who learned them at first hand can forget how by genetic magic he succeeded in stripping off, as it were one by one, the coats of many colours which may adorn a flower—a Sweet Pea for example—and from simple pigments compounded in the Mendelian pestle, rearranging the plant in ordered gorgeousness. Nor may it be forgotten that it was Bateson and his colleagues who first resolved the mystery of reversion by showing how two Mendelian characters, long wandering yet not lost, might chance to come together by the mating of the kinds which bore them severally and, in meeting, reproduce the character which their separation had perforce suppressed. In a masterly series of reports to the Evolution Committee of the Royal Society, and later in the *Journal of Genetics*—which he founded in collaboration with his colleague Professor Punnett—these and many other of his discoveries and those of his pupils and colleagues are recorded. Not least among the results of these unremitting labours are those which showed the curious orderliness in disorderliness which sometimes appears in Mendelian experiments which ordinarily are quite disconnected with one another, when characters get bound up or coupled together or, conversely, disjuncted or repelled from one another. And it is pleasant to know that although Bateson failed to find the deep significance of these facts he lived to learn and welcome its discovery by the brilliant band of present-day American geneticists. So in the fullness of his powers and ardour of discovery, Bateson has died and there is left only to the friends who so greatly cared for him, the knowledge which he bestowed, the inspiration which he imparted, and the memory of his rare and great personality.

Capt. F. Kingdon Ward's Ninth Expedition in Asia.—Capt. F. Kingdon Ward left London on Thursday, February 18, for Burma, whence he will commence his ninth plant-hunting expedition in Asia. He proposes to explore a practically unknown part of Tibet, and at one period of his travels expects to be entirely out of touch with civilisation for a period of three or four months. We feel sure our readers will be glad to know that Capt. Kingdon Ward has promised—as on previous occasions—to contribute an account of his travels and discoveries, in serial form, to *The Gardeners' Chronicle*.

Mr. Wm. Cuthbertson—Many of our readers will be pleased to learn that Mr. and Mrs. W. Cuthbertson, who are "going round the world," are both well and having an enjoyable and interesting time. In a letter dated January 11, Mr. Cuthbertson stated that they were going on to Sydney, from Melbourne, that night, on their way to New Zealand.

The Australian Apple Crop.—The first shipment of the new season's Australian Apples is due to arrive in London on March 25. According to the Commissioner for Australia, Sir Joseph Cook, forty-three vessels have been listed to load Australian Apples for Great Britain between now and the end of May, and it is estimated that over 2,500,000 cases will be shipped this season.

Kenwood.—Dame Beatrix Lyall, Chairman of the L.C.C. Parks Committee, planted a Beech tree in Kenwood on the 13th inst., to mark the spot where the King dedicated the use of the estate for the public last July. Dame Beatrix Lyall stated that improvements at Kenwood were shortly to be put in hand. The bathing pond was to be fitted with dressing accommodation and screened, more seats were to be provided, and a rustic shelter, to be erected out of the balance of the funds raised to acquire Kenwood, would be in readiness for the April showers. The grass tennis courts would be ready for use during the coming summer.

Wormseed.—The possibility of growing Levant Wormseed (Artemisia Cina) in certain sections of the United States as a commercial crop has been considered. This plant is the source of the important vermifuge santonin. The present source of the plant is Turkestan and Persia, and the importation of santonin has been so reduced in recent years that it commands an exceedingly high price. Artemisia Cina has been grown successfully for several years at Chico, California, which indicates that it will probably thrive in the hot interior valleys of California

The Alaska Pea.—This culinary Pea is the principal variety used in the canning industry in the United States of America because of certain peculiar characteristics which it possesses. During the past season no fewer than two-hundred-and-three samples of Alaska Pea were planted at Arlington Experiment Farm, U.S.A., these being obtained from different retail seedsmen. It is interesting to learn from the annual report issued by Mr. W. A. Taylor, Chief of Bureau, of the Department of Agriculture, U.S.A., that the different samples in the collection varied from pure Alaska variety with no mixture, to those which contained not a single plant of the Alaska variety, showing that American seedsmen are no more to be trusted than some in other countries. It is pointed out in the report that the planting of such spurious or mis-named seeds, if grown for canning purposes, will prove a serious loss to the growers. During 1924 no fewer than four hundred varieties and strains of Peas were planted in a trial plot at McMillan, Michigan, and the work of testing is being continued during the current season, the collection including several hundred newly purchased samples of Pea seeds from foreign sources. In the selection-work special attention is being given to the Alaska variety with a view to segregating particularly promising strains or types. The experience in America serves to emphasize the importance of trials of vegetables, varieties and strains of which are more often confused than in other crops. An inspection of a trial of, say, culinary Peas or Lettuces at Wisley at once proves the great duplication of names for varieties and the need for eliminating all inferior strains, some of which are so distinct as to bear little resemblance to the type.

Belgian Sweet Pea Show.—The exhibition of Sweet Peas arranged by the Belgian Sweet Pea Society is to take place in the Brussels Botanic Garden from the 26th to the 28th of June next. The Minister of Agriculture has promised his patronage, and the exhibition appears likely to be very successful. The cultivation of this flower has increased very considerably in Belgium during the past three years.

The Frankfurt Palm Garden.—The celebrated Palm Garden at Frankfurt is to undergo considerable alterations and improvements in the near future. The houses have been extensively repaired and improved, and new Rose gardens and herbaceous gardens are now being planted. The present Rose garden is old-fashioned, and the soil is "Rose-sick"; it has therefore been decided to make an entirely new Rosarium on the lawn in front of the Taunusplatz, where the Roses will be planted in beds according to colour. The herbaceous garden will be a new departure, there having been none up to the present. The Dahlia trials having proved very popular, the cultivation of this flower is also to be greatly extended, and summer-blooming kinds will be introduced; more attention is also to be paid to the pot-plants in the show houses.

Prizes for London Gardens.—*The Daily Telegraph* is again offering prizes for the best gardens in the London postal area. There are four classes, in two of which a first prize of £100, a second of £40, a third of £20, a fourth of £10 and a fifth of £5 are offered. Class three is for gardens at the front, sides or back of houses, restricted to those not exceeding one-eighth of an acre; the remaining class is for gardens of houses not exceeding a rateable value of £35 per annum, situated within a four miles' radius of Charing Cross. Full particulars of the competition may be obtained from the Gardening Editor, *Daily Telegraph*, Fleet Street, London, E.C.4.

Excursion to the Scilly Isles at Easter.—The Garden Club, Limited, is arranging for members and their friends to visit the Scilly Isles at Easter for the purpose of inspecting the bulb fields and gardens. The party, which will be conducted by Mr. Herbert Cowley, will leave Paddington on Thursday night, April 1, and embark at Penzance for the Scilly Isles on the morning of April 2, returning on Tuesday, April 6, or on the morning of April 7. The cost of the trip, including first-class travel and hotel, together with visits to gardens, will be about £13. Special arrangements may be made beforehand for those desiring to stay longer.

Aphides Infesting Bulbs in Store.—Although the fact is not new to science, few horticulturists are aware that—under certain conditions—colonies of aphides are present under the outer skin of bulbs and corms. At lifting time the bulbs may appear to be free from infestation, but if the pest is present it may multiply amazingly while the bulbs are in storage, with the result that the "flesh" of the bulbs becomes pitted, soft, and discoloured. When these colonies occur there is the still greater danger of further infection so soon as the bulb begins to grow and the apex of the growth commences to open. The aphis chiefly responsible for this infestation is Anuraphis tulipae, although Rhopalosiphonius tulipaella has also been found. Special attention has been drawn to the trouble that may arise from the presence of these aphides by the destruction by colonial authorities of a valuable consignment of bulbs and rhizomes exported from this country because they were infested with aphides and mites, although they appeared perfectly clean when dispatched. Investigations made at the Ministry of Agriculture's Plant Pathological Laboratory at Harpenden have shown that the infestation could not have been discovered, before packing, except by a process which would have involved the destruction of the bulbs examined. The development of the infestation occurred between the despatch and the receipt of the consignment. Further investigations and experiments at Harpenden* have resulted in the discovery of a method of fumigation which will destroy the aphides without damaging the bulbs, except in the case of Iris filifolia and giant Iris Xiphium, although these specimens were in such poor condition (their planting season being long past) that they may have suffered as a consequence of weakness. The method which has, so far, given the best results is fumigation with paradichlorbenzene. A close fitting box is used as a fumigating chamber, and in the bottom of this is placed a layer of crystals of paradichlorbenzene; the crystals are covered with a single thickness of loose-textured sacking on which the bulbs to be exported are laid and, in turn, covered with a similar piece of sacking on which a second layer of crystals is placed. The box is then closed tightly and left closed for not less than forty-eight hours, preferably for three days. This lengthy period of fumigation appears necessary because during that period any moulting aphides become subject to the treatment which would be ineffective in, say, forty-eight hours, owing to the natural protection the pests possess when about to change their skin. The experiments suggest that the lesser period of fumigation might be effective if the bulbs were treated soon after they were lifted. Further experiments are in progress, especially with a view to obtaining a cheaper and equally effective fumigant.

THE LATE DR. WILLIAM BATESON, F.R.S.

New Immune Varieties of Potatos.—The Minister of Agriculture and Fisheries has approved as immune from Wart Disease of Potatos for the purposes of the Wart Disease of Potatos Order of 1923 the following additional varieties of Potatos: Celurca; Dunaverney; Grannispud; The Mac; Main's Triumph; Response; and Wonderful.

The Jamaica Banana Industry.—The cultivation of the Banana is one of the chief industries of Jamaica, but according to the somewhat belated report of the Jamaican Department of Science and Agriculture for 1924, the 1924 crop suffered a loss in value, as compared with the previous year, of £1,040,000. The number of stems was 12,000,000, which was some 483,000 stems short of the previous year. The report states that the effect of a loss of 25 per cent. in the value of exported Bananas has naturally reacted on trade and finally on public revenues. Jamaican growers have suffered three bad seasons through drought, and in addition the markets for Bananas have been bad. The significant statement is made that "the slow but generalised paralysis resulting from a three years' drought is even more deadly to the agricultural success of the colony than the swift destruction wrought by a passing cyclone." It is pleasing to know that the prospects of the Banana industry for the coming season are excellent.

Kew Bulletin.—No. 1, 1926, of the *Bulletin of Miscellaneous Information*, published by the Royal Botanic Gardens, Kew, appears in a new cover and includes a coloured plate which is, we believe, a new feature. The plate illustrates an article on "Taxonomic and Genetical Notes on Some species of Nemophila" by R. J. Chittenden and W. B. Turrill. The number also contains particulars of the Gamble herbarium which was presented by the late Mr. J. S. Gamble to Kew, who also presented to Kew his very valuable and interesting collection of hand specimens of Indian Timbers, which have been placed in No. 4 Museum. Amongst other articles the more important are "Humboldt and Bonpland's Itinerary in Colombia"; "Additions to the *Index Kewensis*"; and "Linden and Planchon's Plantae Columbianae."

The proposed Scottish Farm College.—At a meeting of the Governors of the West of Scotland Agricultural College, held at Glasgow last week, the offer of Mr. John Hannah, Girvan Mains, to present the mansion house and policies of Auchencruive Estate together with an area of three hundred acres of arable land was rejected by seventeen votes to nine. In the course of discussion, opposition was directed against the condition stipulating the removal of the college from Glasgow, owing to the location being too far away from the area which the college served, and also on account of the expense necessary in structural alterations and removal. In a letter to the press on the day following the meeting, Mr. Hannah explained why he insisted on the removal of the college from Glasgow to the Dairy School from Kilmarnock. He pointed out that large sums were being annually expended on agricultural education, and yet farmers were not being educated. There were approximately 9,200 farms in the area served by the college, and assuming the average tenure of each holder to be thirty-five years, 260 farmers enter or succeed to the tenancy each year. During the last five years the average number of students enrolled for the first year's course for farmers was twenty-two, and of the seventy-four students who enrolled for the three years' course during the same period, only nineteen came from farms. That is to say, seventy-five per cent. of the students came from the city and neighbourhood and were taking the course not because they had any special interest in agriculture but to acquire knowledge in botany, chemistry and poultry-keeping for commercial and other purposes. As showing the fallacy of continuing the college on its present lines, he quoted a letter from a farmer in Galloway stating that so far as that area was concerned the college was a dead letter.

Losses on Small Holdings.—Mr. Guinness, in reply to a question in the House of Commons, stated that in the financial year ended March 31, 1925, the claims in respect of losses incurred by County Councils in England and Wales in respect to small holdings amounted to £791,850. Similar claims will be made in respect of the year ended March 31, 1926, but thereafter the Ministry's payments will cease to be made on the basis of annual losses, but will be determined by the result of the valuation now in progress under the Land Settlement (Facilities) Amendment Act, 1925.

Town Botany in Winter.—In the botany section of Glasgow University, on Saturday last, Professor J. Montagu Drummond, delivered the second of a series of lectures under the auspices of the Workers' Education Association. Taking "Bulbs" as the subject, he described the distinctive features of bulbs, corms, rhizomes and tubers and their structure. Using the Onion, Tulip, Crocus, Cyclamen, Gloxinia, Iris, Artichoke, Potato and Dahlia for demon-

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*The Control of Aphides Infesting Bulbs in Store. R. Stenton, *Journal of the Ministry of Agriculture*, Vol. XXXII, No. 11.

stration purposes. Referring to the influence of light and heat in the formation of root growth as practised in the cultivation of bulbs, in bowls of fibre in the dark, he did not go so far as to say that light had nothing to do with it, but it was not of so much importance as keeping the plants cool. In the ordinary dwelling-house the coolest place was generally a dark place, and it was more a question of keeping the bulbs in a low temperature to allow roots to develop. The difference between a rhizome and a corm was simply a question of degree, and the Iris and Solomon's Seal were used as examples of the system by which the growth of each successive year could be traced by means of the scars. The distinctive character of multiplication was indicated in the tubers of the Potato and Dahlia which on separation produced a number of plants, and attention was also drawn to the close resemblance between the structure of a Narcissus bulb and that of a Brussels Sprout. The important function of the leaves of bulbous plants was commented on, and as one year's leaves were the basis of a new bulb and new flower they should not be removed, inasmuch as they provided the food materials.

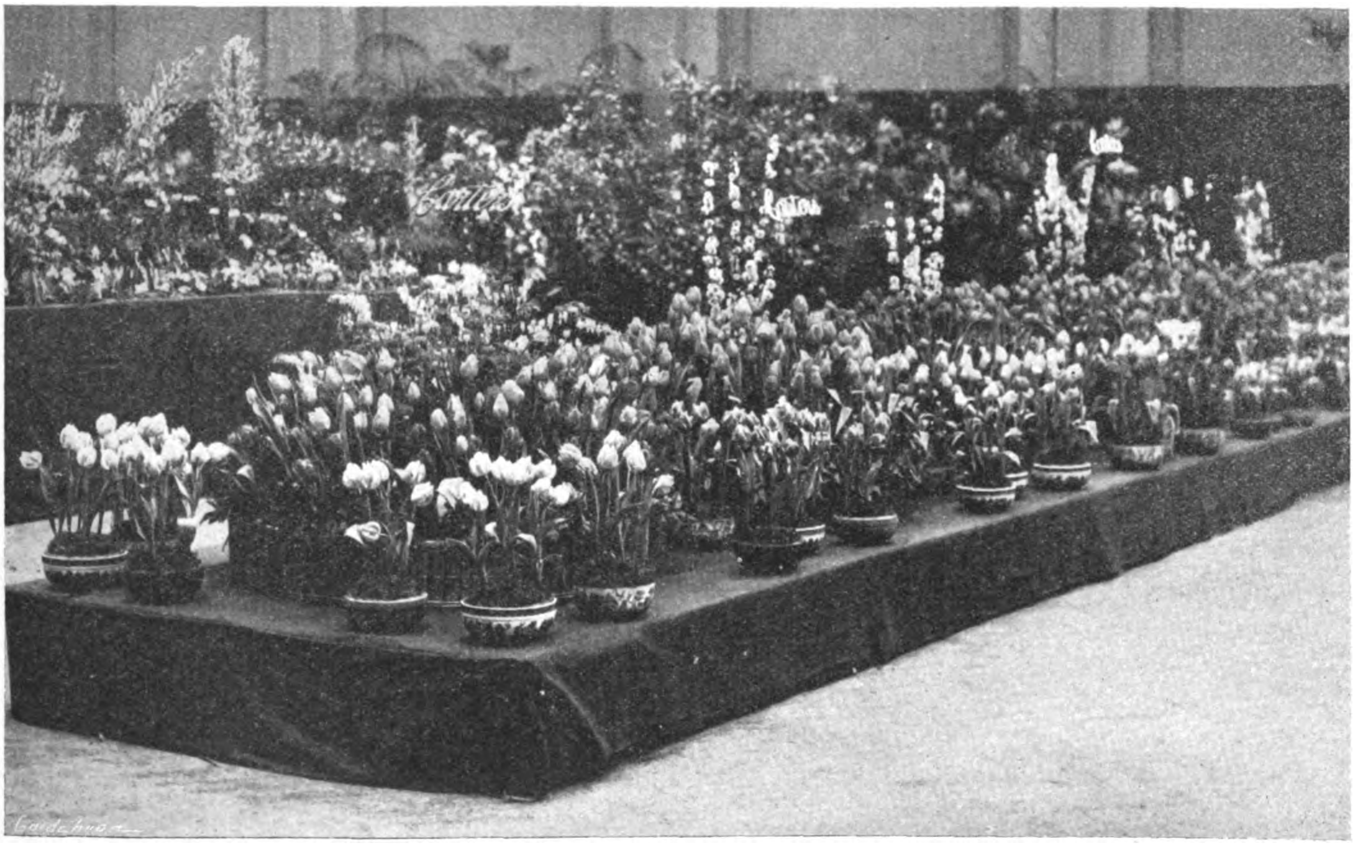

FIG. 63.—MESSRS. J. CARTER & CO.'S EXHIBIT OF TULIPS AT THE ROYAL HORTICULTURAL HALL ON FEBRUARY 9.
(see p. 124.)

Imperial College of Tropical Agriculture.—In reply to a question in the House of Commons, Major Hennessy stated that the Government had decided to make a capital contribution of £15,000 towards the cost of the erection of a hostel, a contribution of £3,000 towards the general expenses of the College in 1926-7, and, if absolutely necessary, certain further contributions in the three following years.

Royal Horticultural Society's Amateurs' Show.—We regret that in our issue of February 6, p 91, we gave the date of the Royal Horticultural Society's Amateur Exhibition as July 22, whereas the date of the show is June 22.

Agricultural and Horticultural Education in Algeria.—The French journal, *Jardinage*, for February, contains a very interesting article from the pen of M. G. Truffaut on the subject of agricultural and horticultural education and research in Algeria, which has made rapid strides in the last few years under the auspices of the French colonial administration. Education is of importance owing partly to the difficulty of obtaining properly trained and qualified labour on the land, and it was to provide it that the College at Maison-Carrée, near Algiers, was founded in 1905. The college has wide domains, and offers extended facilities for study and research in many different directions. It has developed considerably in recent years, and other smaller colleges have been established, as well as a number of research stations each devoted to one kind of cultivation—Cotton, fruit-growing, sheep-farming, cereals suited to dry climates, Grapes, etc. Tobacco growing has received much attention in the last few years, and it is claimed that certain Algerian Tobaccos yield little in quality to the best Egyptian kinds. An interesting feature is the insectarium attached to one of the trial grounds, where insects are reared which are parasitic on certain plant pests. Vine-growing is another subject which is being studied carefully, and which has already yielded encouraging results. In the favoured Mascara region excellent Grapes are produced suitable for almost every purpose, including the making of liqueurs. Sugar Beet cultivation has been tried for the past ten years, and the results tend to show that the quality and sugar content of the Beets exceed those produced in the north of France.

Appointments for the Ensuing Week.—Tuesday February 23: Royal Horticultural Society's Committees meet; Newcastle Horticultural Mutual Improvement Society's meeting and lecture. Wednesday, February 24: Wimbledon Gardeners' Society's meeting. Thursday, February 25: Paisley Florists' Society's meeting. Friday, February 26: Association of Economic Biologists meeting. Saturday, February 27: Lancaster and District Horticultural Association's meeting.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Horticultural Society.* In anticipation of the coming Industrial Exhibition, the Council of the Horticultural Society has decided upon some new regulations, which it is now time to make public. In the first place, each Fellow of the Society may have forty-eight privileged tickets instead of twenty-four, as heretofore. It is also settled that all Fellows shall have an early admission at twelve o'clock, together with one friend; and that the same privilege shall be extended to the wife or sister of a Fellow; he not being able himself to attend. And in order to make this regulation the more valuable, the public will not be admitted till two o'clock instead of one, as in former years. At the same time the admission fee payable on the election of a Fellow is reduced from six guineas to two guineas. Mr. Hosea Waterer, of Knap-hill, who has withdrawn from the Royal Botanic Society's exhibitions in the Regent's Park, has also made arrangements for displaying his magnificent American plants in a part of the garden recently prepared for the purpose. Admission to this exhibition will be by tickets, 1/- each; but Fellows are personally exempt from that charge. Finally, it is intended to authorise all foreign ambassadors, ministers, or consuls-general to obtain tickets for the strangers belonging to the nation they represent, without the formalities formerly insisted upon in such cases. By these arrangements the privileges of Fellows are very substantially enlarged, and at the same time the utility of the Society will be much increased. *Gard. Chron., February 22, 1851.*

The Week's Work.

THE ORCHID HOUSES.

By J. COLLIER, Gardener to Sir JEREMIAH COLMAN, Bart., Gatton Park, Reigate.

Increase of Growth.—As the present month advances the daily amount of sunlight and sunshine will increase appreciably, and most Orchids will begin to show renewed activities. But they should in no way be hastened into growth by an increase of moisture or fire-heat, as it is advisable to keep them at rest so long as possible. Bursts of sunshine during the middle of the day will raise the temperature of the various divisions, and considerable attention must be given to ventilation, for it is essential that a constant supply of fresh air be admitted without causing excessive fluctuations of the internal temperature.

Re-potting Masdevallias.—The general re-potting of Orchids usually commences about this period, and among the many that may claim attention in this respect are the Masdevallias. One of the favourite species of this genus is the pure white M. tovarensis. After the flowers have faded and the plants have started into growth afresh is a suitable time for re-potting or breaking up overgrown specimens and such as have become bare of leaves towards the centres. Orchid pans of medium depth with holes for suspending are suitable receptacles. These should be well-drained. A mixture of equal parts of Osmunda-fibre and Sphagnum-moss, cut into short portions, with a fair sprinkling of half-decayed Oak leaves, rubbed through a half-inch sieve, is a suitable compost for Masdevallias. The strong-growing species, such as M. ignea, M. Harryana, M. Veitchiana, and others of this section, may be grown in ordinary flower pots. The members of what is known as the Chimaera section are best cultivated in Teak-wood baskets, as their flowers are produced in a downward direction, and no crocks should be used in the drainage. The cultural requirements are much the same as for Odontoglossums, but Masdevallias should never be allowed to suffer from dryness at the roots. The plants should be watered with care for a time after root disturbance, but when well-established, they delight in copious overhead waterings, which are helpful in warding off attacks of red spider, to which the leaves of Masdevallias are extremely subject.

FRUIT UNDER GLASS.

By T. PATEMAN, Gardener to SIR CHARLES NALL-CAIN, Brocket Hall, Hertfordshire.

Melons.—Plants raised from seeds sown as advised in a previous calendar are ready for planting out. Although the weather of late has been fairly mild, it has been practically sunless, and the young plants are consequently a little on the weak side. If the plants are not satisfactory it will be well to sow again, but those that have good, healthy stock should prepare a suitable bed in which to plant them. It is desirable to have bottom heat for this early crop, and even where it is supplied by fire-heat I would strongly advise a bottom heat combined with a bed of horse manure and leaves. The material for making the hot bed should be prepared in readiness out-of-doors, and should consist of equal parts of litter and leaves well mixed together. Throw the leaves and dung into a high heap and turn the latter about twice to allow the rank gases to escape before making up the bed. In the meantime the house or pit in which the Melons are to be grown should be thoroughly cleansed, washing the glass both inside and out so as to obtain the maximum amount of light. Melons grown on the cordon system will only need to be planted from fifteen inches to twenty inches asunder, therefore, in preparing the bed it will be necessary to cover a space two feet in width and about six inches deep with the compost, which should consist chiefly of good sweet loam, mixed with old mortar rubble and bone-meal. Make the soil moderately firm arranging a small mound of it for each plant. This will allow for a surface dressing when the border is well filled with roots, to assist the plants when they are swelling their fruits. Maintain a humid atmosphere by lightly syringing the plants and the bare spaces, but the grower must be guided in this by outside conditions. The night temperature should range between 65° and 70°, with a substantial rise during the day with sun-heat. Make another sowing in small pots to have young plants in readiness to meet the requirements of the establishment.

Cucumbers.—Plants raised from seeds sown during the first week in January are ready for planting out. See that the house in which they are to be grown is thoroughly cleansed for this early crop. I strongly advise the use of bottom heat from a bed of litter and leaves as advised for Melons. Cucumbers may be planted out four feet apart on small mounds of soil composed of two parts loam, one part short horse manure and one of leaf-mould. Create a humid atmosphere in the house and maintain the same temperature as advised for Melons.

Grapes in Store.—Give attention frequently to Grapes in store, seeing that no decayed berries are allowed to remain even for one day. A temperature of 45° is suitable, provided the atmosphere is kept dry. Late Grapes will not keep in an ordinary fruit room where Apples are stored.

PLANTS UNDER GLASS.

By JOHN COUTTS, Assistant Curator, Royal Botanic Gardens, Kew.

Asclepias curassavica.—This useful greenhouse plant may be raised from seed sown at this time, the seeds germinating readily in a temperature of 55° to 60°. When fit to handle, the seedlings may be pricked off into small sixty-sized pots, placing three or four plants in a pot. In due course they should be potted on intact into five-inch pots, in which receptacles they should flower towards the end of the summer, at which time they prove useful for the greenhouse, when choice flowering plants for conservatory decoration are scarce. Athough generally treated as an annual, this plant may be grown a second year. These old plants should be wintered in a greenhouse, keeping them on the dry side. Early in the year when young growth develops from the base, the old shoots should be cut down and the plants transferred to six-inch or seven-inch pots, in which they should give a good display during the summer. This plant grows freely in any good potting compost, and succeeds in an ordinary greenhouse.

Rhododendrons.—The tender Rhododendrons of the R. javanicum and R. jasminiflorum types, of which there are many fine varieties, are deserving of much more general cultivation, for with a good collection they may be had in flower, more or less, all the year round. The successful cultivation of these plants is by no means so difficult as is generally imagined, and most of them succeed in a much lower temperature than that generally accorded them. In fact, some of the stronger-growing varieties succeed perfectly in an ordinary greenhouse in which the temperature during winter often falls to 45°; in such houses they make fine specimens planted out in a well-drained, shallow bed. They are easily propagated at almost any time from internodal cuttings made of shoots that have just finished growing, but it is usual to sever the shoots below a whorl of leaves. After trimming off the foliage, they should be inserted singly in small pots containing fine, sandy peat. After watering the soil the pots should be plunged in a warm propagating case provided with a bottom heat of about 70°. When rooted the plants should be stood out on the stage near to the roof-glass. As they grow and are potted on they should be gradually accustomed to an average temperature of about 55°. The potting compost should consist of a mixture of good fibrous peat and sand, with just a sprinkling of light loam for the stronger-growing varieties. Free drainage and careful watering are essential details of cultivation at all times. These Rhododendrons may be flowered in forty-eight-sized pots, but where large specimens are required, they should be transferred to larger receptacles. always, however, taking care not to over pot them. It is urged against them that they make straggly, unsightly plants, and this is true to a certain extent, but this may be largely obviated by bending down the shoots and training them around stakes. This treatment has the tendency to make them break from the older wood. A few good varieties are Taylori, Princess Royal, Latona, Diadem, King Edward VII, Cloth of Gold, Mrs. Neal and Lord Wolseley.

THE KITCHEN GARDEN.

By F. STREETER, late Gardener to MAJOR ALBERT PAM. Wormley Bury, Broxbourne.

Cucumbers.—With the aid of a good hot-bed and a fair amount of fire-heat. Cucumbers may now be raised from seeds. The hot-bed should be made in a low, span-roofed house; in making the hot-bed use three parts leaves to one part of long litter and turn the materials about three times to sweeten them. Cover the bed with a mixture of three parts turfy loam to one part decayed leaf-soil, and sufficient sand or road grit to keep the compost open. Arrange the soil in mounds four feet apart along the bed. and when it is thoroughly warmed through set out the plants from five-inch and six-inch pots. Grown on briskly and in a moist, hot atmosphere, the plants will make headway quickly. Do not stop the shoots until they have grown three parts up the house. The night temperature should not fall below 65°, and on warm, bright days admit a little air through the top ventilators when the thermometer reaches 80°, closing them again at 1 p.m.

Tomatos.—Young plants raised earlier in the season are ready for transference to six-inch pots. Use a rather stronger compost than before, consisting of three parts fibrous loam, one part finely-sifted old Mushroom-bed manure and sufficient sand to render the soil open; a dash of soot will also prove beneficial. Thoroughly crock the pots, and place the soil in the house in which the plants are growing, as it is most important that the latter should not be brought into the open air, no matter how mild the weather. Pot firmly and place a small stake to each plant. The plants will soon develop plenty of roots, and preparations should be made for re-potting them finally in a few weeks. Grow them in a temperature of about 60°, admitting air on all favourable occasions through the top ventilators.

Onions.—So soon as the weather and condition of the ground permit gently prick over the ground on which Onion seed is to be sown and make sure that it is in the best possible condition before sowing the seeds.

HARDY FRUIT GARDEN.

By W. AUTON, Gardener to VISCOUNT ELVEDEN, Pyrford Court, Woking, Surrey.

Small fruits.—If such fruits as Loganberries, Blackberries, Wineberries and other similar fruits of the rambling class have not yet been pruned they should be attended to so soon as possible. The operation consists chiefly in cutting out entirely those growths which have borne fruit, and training in shoots made in the last season of growth to take their places. These fruits may still be planted if desired; they are most useful subjects for covering the sides of old buildings or for creating quickly a screen to blot out any undesirable building, and the return of fruit over quite a long period of the year well repays any attention given to them. During the next week or two, autumn-fruiting Raspberries should be cut to within a few inches of the ground. This section of Raspberries is very useful amongst small fruits and provides dishes of berries which are much appreciated in late summer when variety in fruits is somewhat restricted. There is still time to make new plantations, but this should be done immediately and the canes cut down after planting. A good mulch of partially-decayed manure is of great benefit to newly-made Raspberry plantations.

Planting.—Weather conditions during a considerable portion of the month of January were certainly not helpful in enabling arrears of planting to be overtaken, but with better conditions prevailing, such work should be completed so soon as possible. All trees planted early in the season should be examined, and if they have become loose in the soil this should be rectified.

Strawberries.—Clean the beds, lightly fork the ground between the rows of plants, and where the latter have become loosened through frost and thaw tread them firmly into position. Maiden plants which are being grown for the provision of further stock, may be given a dressing of bone-meal, and the surface soil should be stirred frequently. Fruiting plantations may receive in addition a mulch of fairly fresh manure which, if of the right nature, will serve the double purpose of nourishing the plants during the next few months, and when washed clean by subsequent rains leaving a bedding to prevent the splashing of the ripening fruit.

THE FLOWER GARDEN.

By F. C. PUDDLE, Gardener to LORD ABERCONWAY,
Bodnant Taly-Cafn, North Wales.

Colour Schemes.—A combination of red, orange and yellow plants makes a very striking border which will be at its best during August and September. Dahlias, Kniphofias, Heleniums, Penstemons, Phloxes and Montbretias are the principal subjects that should be used. If Oriental Poppies are planted for early effect, they should be interplanted with scarlet Gladioli. Another attractive border may be composed of pink and salmon shades: this border provides a place for Paeonies in addition to pink varieties of the species already mentioned, whilst Dianthus Allwoodii is very effective as an edging. If the borders are limited to three, white flowers may be combined with the pink, but if a fourth border is available it is better to reserve the white kinds for this. The white border is most effective if it can be arranged with a green background of shrubs and in a semi-shaded position. The introduction of a few plants of pale yellow colour makes a delightful blend, and relieves the dead whiteness. If, however, the border is in the sun, a richer contrasting colour is better, and nothing is more effective than the rich crimson-purple of Dahlia Mevrouw Wurfbain and Gladiolus Master Wietse, also purple East Lothian Stocks. Borders arranged on these lines not only add to the interest of the garden, but they make a pleasant appeal to the senses, for the "blue border" has a soothingly cool effect in hot weather, the "red and orange" border has a cheering influence on a dull day, while the "pink" border is the border of early evening, and "white" is the garden of twilight.

Grafting Rhododendrons.—Layering is undoubtedly the best method of increasing choice hybrid Rhododendrons, but it frequently happens that a valuable variety has no branches sufficiently near to the ground for propagation by this method, and grafting is then the only alternative. Preparations should now be made to prepare the stocks for grafting next month. Seedlings of Rhododendron ponticum with stems about a quarter-of-an-inch in diameter should be selected and placed in five-inch pots. This is better done in early autumn, and the pots plunged out-doors for the winter. If, however, it has been delayed, the stocks should be potted with as little disturbance of the roots as possible. A frame should be prepared with a mild hot-bed and the pots plunged in this. Every effort should be made to get the stocks thoroughly established and the sap running freely before grafting takes place. Saddle grafting is the best system for Rhododendrons, and care should be taken that both stock and scion are as nearly as possible the same thickness so that a perfect union of stock and scion is ensured. The cut parts should be bound with raffia, but neither clay nor grafting wax should be used, for in the case of Rhododendrons this is detrimental to fusion of the graft and stock. After the operation is completed the pots should be again plunged in the hot-bed and the frame kept close until the union is complete, when the plants may be accustomed gradually to more airy conditions.

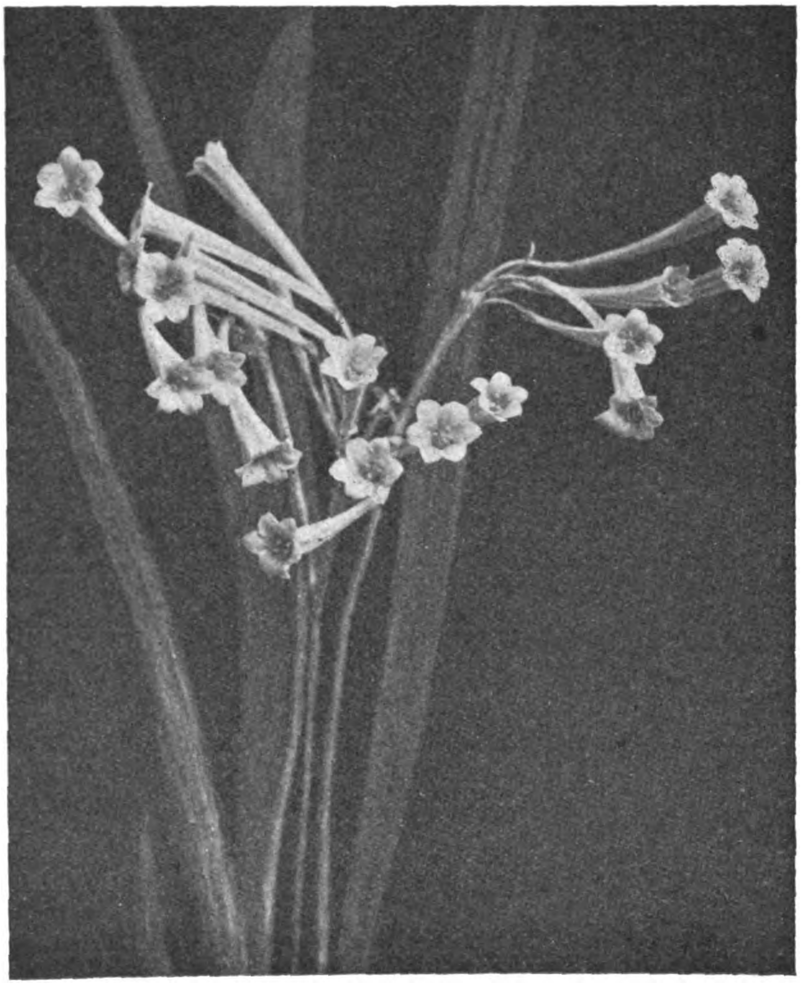

FIG. 64.—CYRTANTHUS LUTESCENS.

R.H.S. Award of Merit, February 9. Flowers tubular, yellow.
Shown by Mrs. Frank Platt-Barlow, Hans Place, W. (see p. 123).

FOR NORTHERN GARDENERS.

By A. T. HARRISON, Gardener to the MARQUIS OF AILSA, Culzean Castle, Maybole, Ayrshire.

Horse Radish.—If a new bed of Horse Radish is desired, the present is a suitable time for breaking up a portion of the old bed, and selecting sufficient crowns with a few inches of root attached, for planting. The thongs should be dibbled deeply in rows, on ground that has been well-manured and dug deeply.

Perpetual Carnations.—Cuttings of these Carnations inserted early in January should be ready for potting separately into thumb pots. Erect a temporary potting bench in the propagating house, and prepare the compost, which may consist of a mixture of loam, leaf-mould and plenty of sand. A number of small pots should also be prepared ready for use. These preparations will not only speed up the actual operation of potting, but by keeping the young plants in an equable temperature all the time, prevent any check at this early stage of their development. Pot moderately firmly, and keep the house fairly close for a few days, gradually admitting more air as the plants show signs of new growth, when in course of time they may be removed to cooler quarters.

Jerusalem Artichokes.—Where the bulk of last year's crop has been left in the ground for use as required, the roots should now be lifted and stored in some convenient spot, behind a north wall for preference, as in this position the tubers keep longer dormant and consequently longer fit for use. In lifting the crop, select medium-sized tubers from prolific stools for replanting, and if the ground is in a workable condition the planting may be done forthwith, placing the sets fifteen inches apart in the rows, and allowing a space of thirty inches between the rows.

Humea elegans.—Plants of Humea elegans which have been wintered in five-inch pots should now be shifted into seven-inch pots. This ornamental biennial is again coming into favour, and well-grown specimens are useful either for the greenhouse or for setting in odd corners in the mansion, where they will remain attractive for a long time if carefully attended to and not overwatered. They may also be used with good effect in a scheme of sub-tropical bedding, where their graceful, feathery plumes and their pleasing perfume add considerable charm. Add a quantity of broken mortar or lime-rubble to the ordinary compost, and do not give the plants too much water until the roots have again reached the sides of the new receptacle.

ORCHID NOTES AND GLEANINGS.

DENDROBIUM GATTON MONARCH.

The particularly fine form of Dendrobium Gatton Monarch, illustrated in the Supplementary Plate which accompanies this issue, was raised by Fred. J. Hanbury, Esq., at Brockhurst, East Grinstead, and it has now received the varietal name of "F. J. Hanbury." The parents of D. Gatton Monarch are D. Lady Colman and D. nobile nobilius, but Mr. Hanbury suspects that the original cross was made by using the form of D. nobile nobilius found in most collections and known as James' variety, whereas the form he used in the production of D. Gatton Monarch var. F. J. Hanbury is named "A. A. Pearson." He obtained a plant of the last at an auction sale a long while ago, and has no knowledge of the "A. A. Pearson" thus commemorated. This fine variety has bold flowers of intensely deep colouring and has been found to produce better results, as a parent, at Brockhurst, than the more commonly-grown form of D. n. nobilius.

Mr. Hanbury was fortunate in being able to raise a fine batch of seedlings of his variety of D. Gatton Monarch, all of which are of robust growth, some of the pseudo-bulbs being a yard high. The flowers of this splendid Orchid are about four inches across (one sent us is four-and-a-half inches across the spread of the petals), and have many of the fine characters of D. n. nobilis, the purple shading being deepest at the ends of the wide petals and on the sepals, The round lip has a deep rose-purple apex. then comes a creamy-white border which entirely surrounds the central rounded area of intense purplish-crimson of velvety texture, and extends to the base of the lip.

ODONTOGLOSSUM KRAMERI.

A **two-flowered** inflorescence of this extremely rare species from Costa Rica is sent by J. McCartney, Esq., Hey House, Tonge Moor Road, Bolton, who is the fortunate possessor of seven specimens of it, which flower irregularly, the curved spikes bearing from two to five flowers, each one-and-a-half inch across. The flowers are pale rosy-mauve, shading to white at the margins.

The lip has two bright yellow calli, the ovate blade having purplish lines at the base. The species is distinct in every respect from others of the genus. The original importers, Messrs. James Veitch and Sons, received a First-Class Certificate for it in 1868. A grand spike of a very fine form of O. Uro-Skinneri is also sent, showing the result of good cultivation.

ODONTOGLOSSUM KRAMERI ALBUM.

Messrs. A. J. Keeling and Sons, Westgate Hill, Bradford, send sprays of flowers, pseudo-bulbs and leaf of a very remarkable Odontoglossum received by them from Mr. C. H. Lankester, of Cartage, Costa Rica, under the above name.

The pseudo-bulbs and the nine-inch long, oblong, lanceolate leaf, are of typical O. Krameri, but the erect, one to three-flowered spikes show differences which would warrant a more critical examination when the plant flowers again, to determine whether it is a new species or not.

The flowers are pure white and very fragrant; the lip is more oblong than in typical O. Krameri, and has, especially in the form of the yellow crest, a resemblance to O. Oerstedii, which is, however, very different in growth. The question of hybridity between the two species might also be considered. Both plants are from Costa Rica. *J. O'B.*

NEW HYBRID ORCHIDS.

(*Continued from January* 30, *p.* 78).

Name.	Parentage.	Exhibitor.
Brasso-Cattleya F. E. Dixon	C. Dowiana × B.-C. Digbyano-Schröderae	E. H. Roehrs.
Brasso-Cattleya Lopez	C. Luddemanniana × B.-C. Marguerite Fournier	Stuart Low & Co.
Brasso-Laelio-Cattleya Nadir	B.-C. Digbyano-Trianae × L.-C. bletchleyensis	Sanders.
Brasso-Laelio-Cattleya Zena	B.-C. The Baroness × L.-C. Luminosa	Stuart Low & Co.
Cattleya Araca	Trianae × Oenone	Baron Schröder.
Cattleya Bessie Baldwin	Enid × Ballantineana	G. E. Baldwin & Co.
Cattleya Rienzi	General Pau × Hardyana	Stuart Low & Co.
Cymbidium Lilian Sander	Erica × insigne Sanderi	Sanders.
Cypripedium Anthony	Lady Dillon × Desdemona	Charlesworth & Co.
Cypripedium Astron	Beeckmannii × Stevensii	Hon. Mrs. N. C. Rothschild
Cypripedium Athollii	C. Louvain × C. Carola	Sir W. Thom.
Cypripedium Columbus	Christopher × nitens-Leeanum	S. Gratrix, Esq.
Cypripedium Elspeth	C. Elise II × C. Perseus	Dr. Craven Moore.
Cypripedium Gudrun	Alcibiades × James O'Brien	Sir Geo. Holford.
Cypripedium Jean Dobrée Fox	Mrs. Spender Clay × Actaeus Drewett's variety	F. J. Hanbury, Esq.
Cypripedium John	Invincible × Beryl	Mrs. Bruce & Miss Wrigley
Cypripedium Jungfrau	Miss Audrey Locke × Christopher	F. J. Hanbury, Esq.
Cypripedium Laertes	Alcibiades × Golden Fleece	Sir G. Holford.
Cypripedium Memo	Astron × The Duchess	Hon. Mrs. N. C. Rothschild
Cypripedium Oriana	Fairrieanum × The Duchess	Hon. Mrs. N. C. Rothschild
Cypripedium Padre	Cynthia × Daffrosum	Sir G. Holford.
Cypripedium Parsifal	Mons. de Curte × nitens-Leeanum Hannibal	Sir G. Holford.
Cypripedium Phoebus	Lucifer × Garibaldi	Sir G. Holford.
Cypripedium Reindeer	Viking × Golden Eagle	Sir G. Holford.
Cypripedium Sir Trevor	hirsuto-Sallieri × Christopher	G. F. Moore, Esq.
Cypripedium Sophocles	Eurybiades × Alcibiades	Baron Schröder.
Cypripedium St. Mungo	Christopher × Dreadnought	R. Paterson, Esq.
Cypripedium Tasso	Actaeus × Dreadnought	Sir G. Holford.
Cypripedium Theo	Dreadnought × Harri-Leeanum	J. & A. McBean.
Cypripedium Tristan	Hadrian × Antinous	Sir G. Holford.
Cypripedium Virgil	Actaeus × Swallow	Sir G. Holford.
Cypripedium Woodhouse	villosum × Alcibiades	Mrs. P. Smith.
Laelio-Cattleya Aconcagua	C. Maggie Raphael × L.-C. Schröderae	Baron Schröder.
Laelio-Cattleya Arun	C. Monarch × L. C. General Maude	Charlesworth & Co.
Laelio-Cattleya Heloise	L.-C. labiosa × C. Enid	Stuart Low & Co.
Laelio-Cattleya Ishtar	L.-C. Sargon × C. Fabia	Sir G. Holford.
Laelio-Cattleya Mantiana	C. Mantinii × L.-C. Lucasiana	Vacherot & Lecoufle.
Laelio-Cattleya Mrs. F. E. Dixon	C. Dowiana × L.-C. Golden Oriole	Ed. H. Roehrs.
Laelio-Cattleya Vinosa	C. labiata × L.-C. C. G. Roebling var. Violetta	Stuart Low & Co.
Miltonia Mona	St. Andre × Charlesworthii	Charlesworth & Co.
Odontioda Amida	Oda. Queen Mary × Oda. Colinge	Charlesworth & Co.
Odontioda Arab	Wilsoni × Bohnhoffiae	Stuart Low & Co.
Odontioda Lucetta	Oda. Aphrodite × Odm. St. James	Charlesworth & Co.
Odontioda Rona	Oda. Alcantara × Oda. Hera	Charlesworth & Co.
Odontoglossum Biddy	Crispothell × Nora	C. J. Lucas, Esq.
Odontoglossum Dusky Prince	mirum × Alexandrina	J. & A. McBean.
Odontoglossum Gatton Prince	Gatton Princess × Gatton Emperor	Sir J. Colman.
Odontoglossum Joe	Pescatorei × Dircimium	C. J. Lucas, Esq.
Odontoglossum Orlando	eximium × St. George	Charlesworth & Co.
Odontoglossum Proteus	Gorizia × Clovis	Cowan & Co.
Odontoglossum Thoro	Prince Albert × crispum	A. Hanmer, Esq.
Odontoglossum Vandalia	Hybrid × Mars	J. & A. McBean.
Odontoglossum Vera	St. James × Laurentia	J. & A. McBean.
Odontonia Naga	Miltonia Charlesworthii × Odm. St. George	Charlesworth & Co.
Odontonia Nubia	Miltonia Charlesworthii × Odm. Doreen	Charlesworth & Co.
Odontonia Sana	Miltonia Bleuana × Odm. Martius	Charlesworth & Co.
Sophro-Cattleya Cecilia	C. Freya × S.-C. Chamberlainiana	Cowan & Co.
Sophro-Laelio-Cattleya Cynthia	S.-L.-C. Robinetta × L.-C. Sargon	Sir G. Holford.
Vuylstekeara Rudra	V. Brewii × Odm. Prince Edward	Charlesworth & Co.

Note.—In list January 30, Brasso-Laelio-Cattleya Gwendoline should be B.-L.-C. Gwendolen.

INDOOR PLANTS.

BROWALLIA.

Browallia viscosa is one of the strongest-growing of the annual species, and is very useful for conservatory decoration. By successional sowings the plant may be had in flower, more or less, all the year round. Seeds may be sown at the present time in a warm house, and when large enough to handle, the seedlings should be placed singly in small pots, repotting them as they require more room, until they are in six-inch pots, in which size fine specimens may be flowered. The young plants should be pinched several times to promote a bushy habit.

This plant grows well in any good potting compost and in a temperature of about 50°.

Browallia elata, and its white variety, as well as B. grandiflora are useful for greenhouse decoration. They grow well under the treatment recommended for B. viscosa.

Browallia speciosa major is the largest flowered kind, but its successful cultivation is by no means so easy as in the case of the other species. It is slower-growing, and should be grown in a slightly higher temperature, viz. about 55° to 60°. To obtain well-furnished plants it is necessary to pinch them several times. Over-potting should be guarded against; excellent specimens may be grown in forty-eight-sized pots. If desired, this species may be propagated readily by means of cuttings. There is a white-flowered variety, but from the decorative stand-point it does not compare with the blue-flowered type. *J. Coutts.*

PYCHNOSTACHYS DAWEI.

This recently introduced Labiate has already established itself as a valuable winter-flowering subject, and where blue flowering plants are in demand it seems likely to become a rival to the hitherto indispensable Coleus thrysoideus, particularly in establishments where growing accommodation is restricted. It is admitted that well-grown specimens of the latter are difficult to equal as blue-flowering winter plants, and for spectacular effect Pychnostachys Dawei cannot approach it, but the newer plant has some attributes which make it more valuable to the grower with little accommodation.

The great beauty of Coleus thyrsoideus is of comparatively short duration; it is somewhat exacting in its needs and not infrequently fails to give of its best, whilst it also needs fairly warm treatment during its whole season of growth.

Pychnostachys Dawei is a plant of the easiest possible cultivation, and its rich, linear-lanceolate leaves, borne in opposite pairs give it a furnished appearance. The flowers, disposed in whorls on a dense terminal spike, are of a rich, Gentian blue, and the whorls open in succession from the base upwards to the point thus giving a long period of display. Besides being of value for conservatory decoration it is useful for cut flower purposes, and in this direction it may be noted that after the terminal inflorescences have been cut, the lower axillary buds develop quickly and produce a secondary crop of smaller inflorescences which are invaluable for table decoration.

Cuttings rooted in the spring may be grown into specimens four or five feet high by the end of the season. The plant flourishes in an unheated pit, or will even succeed in the open from June to September. It is also just as easily raised and grown from seeds. Like all quick-growing plants, it is a gross feeder and should be given liberal treatment. *W. Auton.*

WINTER-FLOWERING PELARGONIUMS.

Where these useful greenhouse plants are grown, cuttings should be taken this month. Fill a number of five-inch pots with sweet loam of a sandy nature, and insert the cuttings around the edges of the pots; where large quantities of plants are required shallow boxes will answer the same purpose. Dust the surface of the pots or boxes with sand and soak the soil with water. After the soil has drained, place the pots on a shelf in a greenhouse where a temperature of about 65° to 70° is maintained.

Shade the cuttings from bright sun light when necessary

In about three or four weeks the cuttings will have rooted, and should be potted singly in three-inch pots The compost for this potting should consist of two parts fibrous loam, one part leaf-soil, half-part air-slaked lime and a little coarse sand. Pot moderately firmly and replace the plants as near to the roof glass as possible, to prevent damping, and to cause them to grow sturdily

As the plants make growth they should be pinched to promote a dwarf habit and to induce them to make side-shoots. Towards the end of April they will be ready for shifting into five-inch pots, using similar compost as before. Harden them in a frame, and until they are rooted only water them sufficiently to moisten the surface. Admit air gradually and increase the amount of air in the daytime as required. In about four or five weeks time the plants will be ready for their final potting in six-inch or seven-inch pots, furnished with plenty of drainage material. The compost should be made up as follows : two parts fibrous loam, one part leaf-soil, one part old Mushroom-bed manure, one part sand, half-part air-slaked lime and a good dusting of basic slag. Pot firmly. When the plants have restarted into growth give them plenty of air and grow them in a sunny position. Judicious pinching should be observed from time to time to promote sturdy growth, and care should be taken that the soil is not saturated with water. In dry weather a weak application of liquid manure or soot water, given at intervals, will be beneficial. By the middle of September the plants should be removed to their flowering quarters in a greenhouse, when they will soon develop flower trusses. *G. Barton.*

HARDY FLOWER BORDER.

NEMOPHILA INSIGNIS.

It would be a difficult task to find a more familiar garden flower than the blue Nemophila, for it is one of the first favourites of the amateur gardener, and never ceases, as some first favourites do, to retain a hold on the affections of all who grow it.

The plant is one of a series of hardy annuals obtained from California in the early days of exploration in the " Far West," by David Douglas, who was sent out by the Horticultural Society of London to secure new floral treasures for British gardens.

The Nemophilas, like the Eschscholzias, Gilias, Collinsias and other Californian annuals, make finer growth and flower more abundantly when sown in autumn than when sown in spring. The best method is to sow in August or September on poor, well-drained soil. If the plants are not too thick in the beds they will pass through the winter with but little harm, but if crowded or damp the winter weather will seriously reduce their numbers. Early in the spring they may be lifted in patches and carefully transplanted to well prepared beds.

The flowering of the plants under such treatment will surprise those who know them only as sown in spring and left in crowds to struggle for light and air. But success with spring-sown annuals may be obtained by sowing in February and March in well-prepared soil and taking special care to thin the plants so that every one has ample room for development.

Nemophila insignis is suitable for pot culture for the decoration of the greenhouse and conservatory. The pots should befil led with light, rich soil, and not more than three plants should be grown in a forty-eight-sized pot, which is the best size to grow them in. Although when planted in the garden they have to take their share of sunshine and it does them no harm, when grown under glass they should be shaded from the midday sun on bright days. These sweet little flowers belong more to the grove than the open prairie, and when grown as pot plants full sunshine is harmful to them. There are several varieties in commerce, but for general garden purposes none is superior to the type. *A. P. C.*

ALPINE GARDEN.

CLAYTONIA AUSTRALASICA.

If too rampant for the choicer parts of the rock garden, this little carpeting plant may be very useful in the part shade of woodland, about the stones of flagged walks and any other place of the kind where a ground cover is desired, and where it can be permitted to spread at will.

The plant creeps rapidly underground, and soon covers a considerable space with its narrow, grass-like foliage, barely an inch in height and of a bright, glossy green. During May and June this turf becomes studded with pure white, stemless flowers, each about half-an-inch in width and possessing a distinct family likeness to those of the other species in the pearly lustre of their petals.

C. australasica has withstood over twenty degrees of frost here, and that in a damp, cold part of the garden near the water. *A. T. Johnson, Taly Cafn, North Wales.*

ANAGALLIS.

The blue Pimpernel is worthy of a position in the rock garden, where its richly-coloured flowers will be welcomed during the late summer and early autumn. The seeds may be sown in prepared positions during April, and the seedlings thinned when large enough to handle. The plants grow to a height of about six inches and should be regulated to that distance apart. To bring the plant to perfection a sunny position is required.

SEDUM CAERULEUM.

This pleasing little annual may be grown either on the rockery or in the front of the flower border. The soft blue colour of the flower is charming but not very conspicuous, and for this reason the clumps should be fairly large.

The seedlings should be raised in a warm house during March, and when large enough to handle, pricked out about two inches apart, in boxes containing sandy soil. These boxes may be placed in a cold frame and remain there until the plants are ready for transferring to their permanent quarters.

This Sedum is not very tender, and after undergoing the usual hardening off, may be planted out during May.

In well-drained situations, self-sown seedlings will be found to survive a normal winter, but being small are liable to perish through the lifting action of frost. The height of the plant is about four inches. The seeds may be sown where the plants are to flower, but as they are very small, raising the plants under glass is a more reliable method. *Charles Hodgson.*

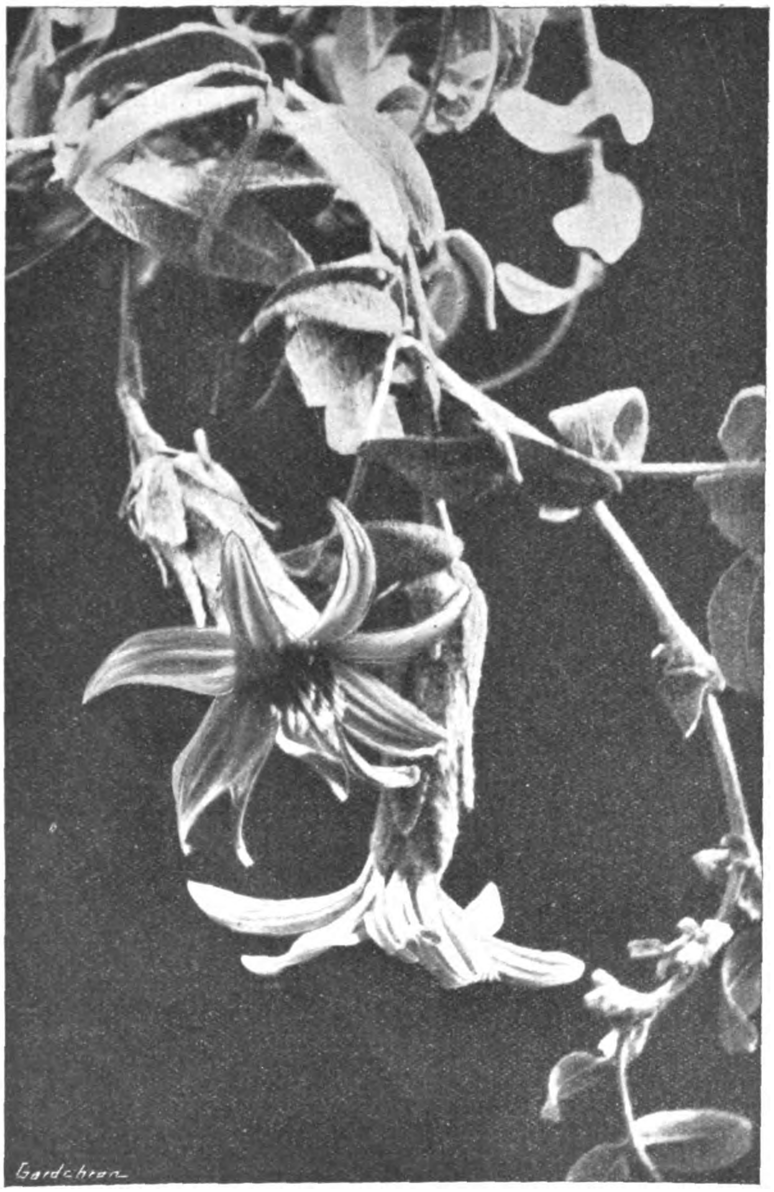

FIG. 65.—MUTISIA CLEMATIS.
R.H.S. Award of Merit, February 9. Flowers pendant, corolla scarlet.
Shown by Lieut.-Col. Messel (see p. 123).

NOTES FROM A WELSH GARDEN.

Olearia semi-dentata is such a beautiful shrub—probably the best of the genus—that it is hard to have to abandon it on account of its being too tender for this immediate locality. The early December frosts which killed our oldest specimen were undoubtedly abnormally severe, but, even so, we have lost this fine species before, and I doubt if it will be replaced this time. In the same "black list" must be placed Cistus vaginatus, a remarkably handsome species from Teneriffe, which is much the tenderest of all its kind grown here. Even in a favoured spot against a wall, this has perished. Cantua buxifolia is another shrub of which a similar tale must be told, for even if it does not get killed by frost, fresh growth always starting from the base, it has never yet flowered. And after all, why attempt to grow "doubtfuls" when there is such a wide choice of really reliable and equally attractive subjects which will take their places ?

The many weeks of mild and muggy weather which we have had since December have brought about the inevitable premature development of leaf and flower on all sides. Rhododendron Nobleanum was in bloom soon after mid-January, R. praecox being but a few days later. These are at least a month before their usual date with us and, as I write (February 10), R. Christmas Cheer, a R. causasicum cross, is breaking into colour. This latter, with its neat, compact trusses in bright rose and white, is very delightful in the early year, and its blooms seem better able to withstand wintry weather than those of most early Rhododendrons.

One of the most interesting plants now in flower is the tiny Arcteria nana, which is apparently quite satisfied with a bed of old leaf-soil and grit on the cool side in the rock garden. Though barely three inches across, and only about half as tall, this little mite from Spitzbergen is laden with blossom, every twig terminating in a crowded raceme of creamy-white, urn-shaped bells which smell strongly of honey. At first we had this little plant in a partially shaded bed in the woodland, given over to dwarf Gaultherias and kindred plants, but it resented the drip or lack of light and was undoubtedly "in decline" when it was moved to its present place with practically full overhead exposure, and where, as I have said, it is vigorous and healthy. An excellent illustration of A. nana appeared in *The Gardeners' Chronicle* of April 19, 1924.

Anemone Hepatica has been in evidence for some weeks. Indeed, a robust, pure white—presumably A. H. triloba alba—had copious clusters of flowers before the Winter Aconites and Snowdrops had appeared, and this white form, it is worthy of note, is the only one of this genus which produces self-sown seedlings here. In fact, it is fully and freshly naturalised, whereas I cannot recall having found a single seedling of any coloured variety. All these Hepaticas are so charming that is is difficult to make comparisons, but a "best half-dozen" would surely have to include A. H. angulosa lilacina grandiflora, A. H. angulosa rosea (a very rich Cherry-carmine), A. H. triloba violacea, or any other good single dark blue, a single pink and the white mentioned. Tastes will always differ, but the single blooms in these cheerful tokens of the early year are to my mind more beautiful than the doubles.

Crocus Tommasinianus in open spots in the woodland will be in full flower before these notes are in print; there are sunny places already glittering with the common yellow Dutch Crocus—always the earliest and one which, if it never sets seed, is constantly spreading, the corms probably being carried about by mice. Species of Muscari are showing their various blues, dainty M. azureus in the clearest Cambridge blue being especially lovely. Dog's-tooth Violets, notably Erythronium revolutum Watsonii and E. americanum, have unsheathed their buds much before their usual date, and Cyclamen Coum is brightening the densest shade with its lively rose carmine flowers.

On a warm border, Iris reticulata is in bloom, and more charming features the season does not yield than these violet-scented, rich purple and gold blossoms. I. reticulata is, moreover, a little plant of much discretion, its buds waiting with most commendable patience for a break of genial weather. Many of the early Saxifrages, on the other hand, seem to regard the date with more punctiliousness than the weather. S. Burseriana and some of its allies for example, always seem to march with the Snowdrops unless the weather be very severe, and nothing daunts the bravery of S. apiculata. S. Bursiculata is equally robust, and if it is not as choice a plant as good forms of S. Burseriana (one of its parents) it is exceptionally reliable and trustworthy, thriving and blossoming freely where the true S. Burseriana of more exalted standard is not so successful in winter and more impatient of summer heat. S. Faldonside and S. Grisebachii are in bloom, and beyond praise, and the delightful S. kewensis is studded with buds.

Omphalodes cappadocica is always precocious, the first of its kind here to give colour, and what an exquisite blue it is! But its season is a long one, and a goodly plantation, ever extending by self-sown seedlings, will not be at its best until the branches of Magnolia stellata above it are a-flutter with their white-rayed flowers. Indeed, it is not unusual for O. cappadocica to be still flowering gaily when a bush of Rhododendron occidentale, which also stands among it, is announcing the arrival of full summer with its fragrant white blooms.

Quite the most remarkable survival of the very severe weather we have had is Lithospermum rosmarinifolium. As stated in earlier notes, this fine subject came into flower this season in autumn, several weeks before its usual date. Its flowers and a good many buds were of course, destroyed by the frost, but the shrub itself did not suffer and it is now better than ever, its glossy dark green foliage being covered with the wonderful Gentian-blue flowers.

In his "Notes from Glasnevin" (p. 98), Mr. W. J. Besant refers to the advisability of growing L. rosmarinifolium in poor rather than rich soil, and suggests the "top of a dry wall." I heartily concur in that opinion, and have no doubt but that the safety and success of my old plant are due to the fact that it is in soil that is two-thirds stones and grit (with a little old mortar), and this is on the top of a low and very dry retaining wall over which the branches hang to the extent of nearly three feet.

Daphne Blagayana is in full bloom in the part shade of woodland trees, its creamy clusters filling the air about it with a delicious fragrance on every mild day. So soon as its flowers are over the plant will be top-dressed with leaf mould and grit well up to the foliage, the branches being held down by stones. To this application in spring and early autumn we attribute our success with this rather fastidious alpine. D. Dauphinii has broken into flower again since the frost. In spite of the delicate appearance of its fresh green leaves, this Daphne (supposed to be a D. odora × D. collina hybrid is quite hardy here, even in such a winter as this has been.

With the exception of Veronica Traversii and V. salicifolia, the taller shrubby members of this genus do not produce self-sown seedlings. Very occasionally one may find a seedling from some of the hybrids of the speciosa group and a few days ago I found, for the first time, two or three little plants which are undoubtedly the offspring of the odd-looking, V. macroura. In spite of its curiously crumpled appearance, this prostrate species is undoubtedly one of the more attractive of the larger shrubby Veronicas having pure white flowers. It is, moreover, exceptionally hardy and robust. It is not often that Veronica chathamica is affected by frost here, but this winter a large specimen trailing over a low retaining wall has been rather badly injured. Still, considering the severity of the frost, if this plant had not been tolerably hardy it would never have survived at all.

V. chathamica is one of the very few members of its genus which are perfectly prostrate.
A. T. Johnson, Ro Wen, Talycafn, N. Wales.

MESEMBRYANTHEMUM.

(Continued from p. 117).

1.—CONOPHYTUM, Haw.

(Additions and Corrections; see vol. LXXVIII, p. 450).

In the *Zeitschrift fur Sukkulentenkunde*, vol. II, p. 137 (December, 1925), Mr. G. Schwantes has proposed to separate from the genus Conophytum those species belonging to the same group as C. bilobum, C. Elishae and allies (and he also includes the very different Lithops Friedrichiae among them), and to form of them a new genus, to which he gives the name Derenbergia, stating that Derenbergia differs from Conophytum as follows:—(1) by the absence of bracts; (2) by having a 4-celled capsule; (3) by the shape of the growths. From this statement it would seem that Mr. Schwantes has neither dissected these plants nor even read my descriptions of them, or he would have found:—(1) that if flowering growths had been cut open a small pair of bracts would have been seen to be present upon the pedicel (which is concealed in the body of the growth) of the flower in C. bilobum, C. Elishae and allies, and upon that of every other species of Conophytum! (2) That the ovary and capsule of C. bilobum, C. Elishae and some other species is 4, 5 or 6-celled in different flowers of the same plant, and varies in different years! (3) As to the shape of the growths, that is only a specific, not a generic character. Conophytum contains several types of form, and around each type several species may be grouped, and the groups mostly grade into each other without well defined limits.

Therefore, as there are no valid characters whatever by which Derenbergia can be separated from Conophytum it can only rank as a synonym of that genus. No new species are described under that generic name, but some of the species described by myself are transferred to it.

When I described C. Meyeri, N. E. Br., in *The Gardeners' Chronicle*, 1925, vol. LXXVIII, p. 484, I described the growths as they appeared shortly after they were received, but now they have "plumped up," they are almost globose in form, with no trace of any compression.

In *The Gardeners' Chronicle*, 1926, vol. LXXIX, "C. Whettsteinii, N. E. Br." and "C. Eliskae" p. 12, columns 1 and 3, should be corrected to *C. Wettsteinii and C. Elishae* respectively. I regret that these errors were quite overlooked by myself in the proof.

4.—RIMARIA, N. E. Br.

Stemless, succulent perennials, with the growths under natural conditions usually crowded upon the top of a deeply descending rootstock, rarely solitary. Growths subglobose or compressed-ovoid, formed of two (or when forming a new growth, four) hemispherical or thick, ovate, equal or unequal, leaves united for half or two-thirds of their length, and their free parts pressed closely together, entire or with minute teeth on their edges and sometimes along a slight keel on the top; smooth, glabrous or puberulous with microscopic soft points, green or whitish, or dove-grey, without dots. Flowers solitary. Pedicel partly or at least the ovary exserted, bearing a pair of bracts included in the body of the growth. Calyx subequally 5–9-lobed down to its union with the ovary. Petals numerous, free, in about 3 series, linear. Stamens numerous, erect, no staminodes. Style none; stigmas 7–15, erect filiform. Ovary inferior, 7–15-celled; placentas on the floor of the cells. Capsule shallow, flattish on the top, with 7–15 valves and cells; valves, when wetted, widely spreading or more or less reflexed; expanding-keels more or less diverging, with broad, membranous, marginal wings; cells roofed with flat, flexible, membranous, semitransparent cell-wings; no tubercle at the opening. Seeds many in a cell, very small, subglobose, with a nipple at one end, smooth.

Species 4, natives of the Karoo region of South Africa. The type of the genus is R. Heathii, N. E. Br.

The name is derived from the Latin, *rima*, a cleft or fissure, in allusion to the crack-like cleft between the closely applied faces of the leaves when the plant is at rest.

This genus is readily distinguished from nearly all others of the Mesembryanthemum tribe by its dwarf, stemless habit, subglobose or compressed-obovoid or oblong growths of firm substance, with the two leaves of which they are composed closed tightly together during the resting period. The only genera with which it can be confused are Gibbaeum and Didymaotus. From those few species of Gibbaeum that have equal or subequal leaves, the firmer substance of the growths, and the more numerous (7-15) stigmas, valves and cells of the ovary well distinguish it; and from Didymaotus, the absence of dots upon the growths, the central (not lateral) flowers and more numerous stigmas readily separate it. The sectional structure of the flower resembles that of Lithops, but in its vegetative character, more numerous stigmas and cells of the ovary, and especially by the presence of cell-wings roofing the cells of the capsule, it is very different.

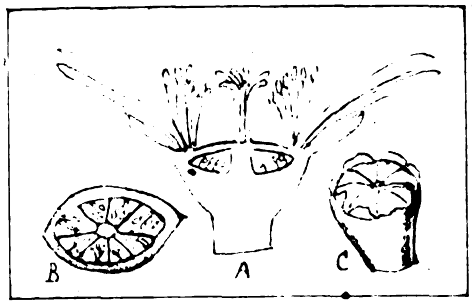

FIG. 66.—RIMARIA HEATHII.

A. Diagram of the structure of the flower.
B. Transverse section of ovary.
C. Capsule.

The diagramatic figures (Fig. 66) showing the structure of this genus are not drawn to any scale: the figure of the capsule is about one-and-a-half times natural size.

KEY TO THE SPECIES.

1.—Surface of the growths microscopically puberulous, velvety to the touch; leaves or lobes with minute teeth on their edges and often along the faint keel. **3, Roodiae.**

Surface of the growths glabrous, no teeth. **2**

2.—Surface faintly rugulose and microscopically granulate, of a light dove-grey colour. **4, Pole Evansii.**

Surface smooth, whitish, glaucous-green, or of a pale reddish tint. **3**

3.—Growths 1-1¾ inch high, 8-15 lines broad and 6-10 lines thick; flowers white. **1, Heathii.**

Growths ½-1 inch high, 4-8 lines broad and 3-6 lines thick; flowers unknown. **2, dubia.**

1.—**R. Heathii, N. E. Br.** (Figs. 66, 67). Rootstock thick, deeply descending. Growths crowded upon the top of the rootstock, or, under cultivation, at the ends of short prostrate branches, subglobose and from 1-2 inches in diameter or compressed obovoid and 1-1¾ inch high, 8-15 lines broad and 6-10 lines thick, with the fissure between the leaves 5-8 lines deep, and the top of the leaves rounded or faintly keeled, quite entire, smooth, glabrous, uniformly whitish to pale glaucous-green, or sometimes tinted brownish or reddish, without spots or other markings. Pedicel equalling or slightly exceeding the growths, stout, flattened, with acute edges and 5-6 lines broad, glabrous. Calyx compressed, subequally 8-9-lobed, glabrous; lobes 3-4 lines long, 2-2½ lines broad, oblong, obtuse, mostly with membranous edges. Corolla 14-18 lines in diameter, expanding about midday and closing at the latter part of the afternoon; petals numerous, in 3-4 series, free, subequal, 7-9 lines long and in ¼-¾ line broad, linear, obtuse or acute, white. Stamens numerous, in several series, erect and loose or spreading so as to form a ring, 1½-3 lines long; filaments filiform, not dilated nor ciliate at the base, white; anthers creamy white. Stigmas 8-9, erect, with spreading tips, about 2 lines long, filiform or subulate, acute, green. Ovary flat or very slightly convex at the top, 8-9-celled. Capsule about 5 lines in diameter, very slightly convex, with 8-9 raised ridges on the top, and with 8-9 valves and cells; valves with the expanding-keels diverging from their base, adnate to about the middle of the valve with the upper part free, provided with broad, rounded, membranous wings that are often united in pairs between the valves; cells roofed with flattish membranous cell-wings, without a tubercle at the opening. Seeds very numerous in each cell, about ¼ line in diameter, subglobose, pale brown, with a dark brown nipple, smooth.

Mesembryanthemum Heathii, N. E. Br., in *Journ. Linn. Soc. Bot.*, vol. XLV., p. 67.

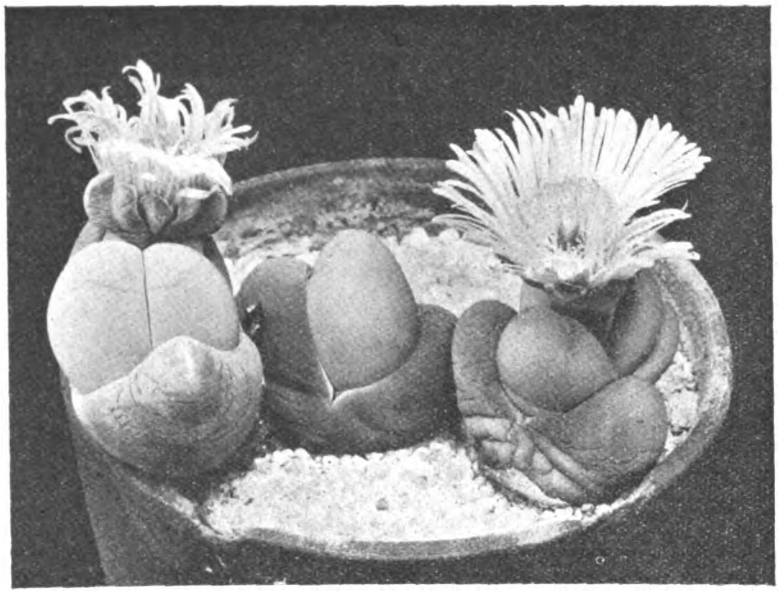

FIG. 67.—RIMARIA HEATHII, N. E. BR.

Natural size. From a photograph by Dr. Rodier Heath.

Ladismith Division: In the Klein Karoo between Garcias Pass and Ladismith, Pillans 890!; near Adams Kraal, Muir 3415!; at Hondewater, Muir 3665! 3776!, and 3777! at Algeryns Kraal, Muir 3775!; and without precise locality, Muir 3773, 3774!

This very distinct plant was first introduced in 1906 by Mr. N. S. Pillans, who sent plants of it to Kew, which soon died; a capsule upon one of them was, however, given to Dr. F. H. Rodier Heath, who raised some plants from the seeds, which is the source whence most of the plants now in cultivation have originated.

According to Dr. J. Muir it is common locally in several parts of the Klein Karoo, and is known to the Dutch farmers by the name of "Vogelstruis Water," *i.e.*, Ostrich-water, as Ostriches eat them for the water that is contained in their succulent growths.

Kept constantly in a greenhouse, this plant seldom flowers, but in hot, sunny summers, if given as much open air treatment as possible, it is less difficult to get it to flower. *N. E. Brown.*

(*To be continued.*)

IRIS GARDEN.

IRIS UNGUICULARIS.

I READ with great interest of Mr. W. Auton's remarkable success with this Iris (see *Gard. Chron.*, January 23, p. 60), and congratulate him not only on the large numbers of flowers produced, but also on the care taken by him to convey to your readers full details of his methods of culture.

In our mild and humid west we cannot hope to emulate Mr. Auton's success with this fine winter-flowering Iris, but much may be done by following his plan of a raised, narrow border, and planting in very poor stony or sandy soil, as these conditions more nearly conform to those of the country of its origin, Algeria. Another plan which I have tried, with fair success, is to plant at the foot of a south wall where the gravel path goes right up to the wall, planting actually in the path. Although this Iris had, previous to that, been growing for many years without producing a flower on sheltered borders, it responded to this starved rooting-medium the first winter by producing a number of flowers, and continues to bloom freely each successive year.

In the *Gardener's Pocket Diary* issued by the R.H.S., a note on this Iris has appeared for a number of years, and it is recommended to cut its leaves back to half their length in May or June, as a certain remedy for its non-flowering. If this is carried out and proves correct, many more flowers of this lovely Iris should be forthcoming. It is certainly worth trying where the plants persistently refuse to flower, either because they are in a very rich soil or in too sheltered a spot.

A number of years ago I saved some seeds from this Iris and sowed them in a box filled with ordinary soil. No seedling appeared for eighteen months, and, growing impatient at the long delay, I upset the box and its contents on to the Peach-house border, simply picking off the crocks and scattering the soil. Picture my astonishment when about a month later some thirty or forty of the seeds germinated, as if they preferred my rough treatment to the more usual method of seed-sowing. This Iris is frequently grown in gardens under its synonym I. stylosa; the flowers are somewhat fugitive and they are too tender for packing for travelling. *A. T. Harrison, Culzean Castle Gardens, Ayrshire.*

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CLASSICAL AND LEGENDARY GARDENS.

II.—The Gardens of Adonis.

THE story of Adonis is of high antiquity, and, in one of its forms, of Phoenicean origin. With much of the legend, or legends rather, for they are numerous, the modern mind can have but scant sympathy. To modify a saying of J. R. Lowell—time makes this ancient law uncouth. It seems, however, that the story is one of the ways in which the Eastern intellect endeavoured to set forth among other things, the mysterious powers of nature. At his birth the beautiful child Adonis was placed in charge of Persephone, who, later, declined to surrender her protege. Adonis became the lover of Aphrodite, and so great was the grief of the latter at his death that he was permitted to spend one half of each year with her on earth, the other half being passed in the nether world. Aphrodite, according to the mythologists, represented the fructifying powers of nature, while Adonis symbolized the death of nature in winter. In this case the legend must have originated amongst a people who resided in a region where the year was nearly equally divided into two parts of six months each. The death of Adonis and his return to life gave occasion for annual celebrations known as Adonai, at Athens, Alexandria, Byblos and elsewhere.

According to Cox, one of the staunch supporters of the Solar Myth, "the dawn, as bringing back the sun and recalling to life the slumbering powers of nature, is especially the lover of the bright fruits and flowers which gladden her pathway. In other words, Aphrodite loves Adonis and would have him for ever with her. The word Adonis is manifestly Semitic, and the influence of Asiatic thought may be readily admitted in the later developments of this myth; but the myth itself is one which must be suggested to the inhabitants of every country where there is any visible alteration or succession of seasons." In another place (*Mythology of the Aryan Nations*) he writes of the sensualizing of the legend of Adonis, which represents the sun calling the earth back to life.

Much has been written respecting the similarity which exists between this and other legends, such as the Hebrew Tammuz with its Babylonian equivalents, and those more western forms to be found in Scandinavian folklore. But while the myth is admitted by many writers to be connected with the changes of season, W. R. Smith and others give it a different interpretation. The question, however, is too complex for our present purposes, and I turn to that aspect of it which is of more immediate interest to lovers of plants and the garden.

It is well-known that more than one plant bears the name of Adonis. The name Adonis-flower or Flos Adonis was applied to the Pheasant's Eye (Adonis autumnalis, L.) by Linnaeus, who was very fond of using classical names for plants and insects. The name Bluts-Tröpfchen which is given to another species (Adonis aestivalis) by the German people recalls the story of the untimely end of our hero. One variant has it that, having received a fatal wound from a boar, he poured out his life-blood on the greensward, whence sprang the red Adonis flower. Ovid and others have repeated and added to the legend, telling us now that the flower sprang from his blood, and again that it was due to the tears of Venus on account of his death. Yet another version has it that the Rose sprang from the blood and the Windflower from the tear.

> "But gentle flowers are born and bloom around
> From every drop that falls upon the ground,
> Where streams his blood, there blushing springs the Rose.
> And where a tear has dropped a Windflower blows."

Since these forms do not suffice the poets and romancers, we further learn that the Anemone blossomed from the corpse of Adonis, while the gore which flowed from the foot of the goddess, who trod on a thorn while hastening to his aid, turned the white Rose to red. Shakespeare has an allusion to the legend in Venus and Adonis:—

> "By this, the boy that by her side lay kill'd
> Was melted like a vapour from her sight,
> And in his blood that on the ground lay spill'd
> A purple flower sprung up, chequer'd with white,
> Resembling well his pale cheeks, and the blood
> Which in round drops upon their whiteness stood."

In an ancient codex of Dioscorides, which is preserved in Vienna, is to be found an illustration of the Adonis flower as described by Ovid, under the name Argemone. As one of our Poppies bears this name we are reminded that the red Poppies of Flanders were said to have sprung from the blood of the soldiers who perished in the battle of Waterloo!

Among the Romans, Adonis was one of the divinities, of which there were several, who had gardens under their protection. We find, therefore, that the term "Gardens of Adonis" has several meanings. Not only were they the resorts of pleasure which he had under his care; they were also pleasaunces devoted to his honour. Eden, says Milton, was a place of delight;

> "Spot more delicious than those gardens feign'd
> Or of revived Adonis, or renown'd
> Alcinous, host of old Laertes' son;
> Or that, not mystic, where the sapient king
> Held dalliance with his fair Egyptian spouse."

The visitor to Rome will not need to be reminded of the gardens planted by Domitian, near his Stadium, in honour of Adonis, rendered famous as being the place where St. Sebastian suffered. Hare's description is as follows:—"A lane runs up to the right from the Arch of Titus. On the left is a gateway surmounted by a faded fresco of S. Sebastian. Here is the entrance to a wild and beautiful garden possessing most lovely views of the various ruins, occupying the site of the Gardens of Adonis. This garden is the place where S. Sebastian underwent his (so-called) martyrdom, and will call to mind the many fine pictures scattered over Europe, of the beautiful saint, bound to a tree, and pierced with arrows. The finest of these are the Domenichino. in S. Maria degli Angeli, and the Sodoma at Florence. He is sometimes represented as bound to an Orange tree, and sometimes, as in the Guido at Bologna, to a Cypress, like those we still see on this spot." (*Walks in Rome*).

I visited these Gardens of Adonis on May Day, 1925. It must, however, be noted that while Pliny mentions the Gardens of Adonis, as Milton does, with those of Alcinous and the Hesperides, and Spenser as—"The first seminary of all things that are born to live and die according to their kinds," the Greek writers frequently employ the term in quite a different sense. From the many allusions to the subject which may be found, I quote that of Professor Sayce. "It was, above all, in the Phoenician town of Gebal or Byblos (eight miles to the north of Beirut) that the death of Adonis was celebrated. Hard by was the river of Adonis, the Nahr Ibrahim of to-day, which rolled through a rocky gorge into the sea. Each year, when the rains and melting snows of spring stained its waters with the red marl of the mountains, the people of Gebal beheld in it the blood of the slaughtered Sun-god. It was then, in the month of January or June, that the funeral festival of the god was held. For seven days it lasted. 'Gardens of Adonis,' as they were called, were planted—pots filled with earth and cut herbs, which soon withered away in the fierce heat of the summer sun—fitting emblems of the lost Adonis himself. Adonis, the young, the beautiful, the beloved of Ashtoreth, was dead; the bright sun of the springtide, like the verdure of nature which he had called into life, was slain and withered by the hot blasts of the summer."

The plants which were used on these occasions were not always "cut herbs," or sprays which withered when the sun shone. In the little earthen pots Lettuce and Fennel, Cress and other plants were grown, while a wooden image of the god was placed in their midst. These were all symbolical. The Lettuce, for example, was regarded by the ancients as a suitable salad for times of mourning, on which account "they employed it largely in their funeral repasts in commemoration of the death of Adonis whom Venus had concealed in a bed of Lettuces," where he was found and slain by the wild boar which came there to pasture. Fennel also has much ancient lore attached to it, and its use was symbolical.

The name for garden in Greek was *Kêpos*, and our Greek Lexicons inform us the 'Gardens of Adonis' (*Adonidos kepoi*) were "cresses and other plants grown quickly in pots." From this arose the proverbial use of the term for amusements and pastimes.

We are thus led to note one other use of the phrase. Among the scholars whom Leo X gathered around him at the beginning of the sixteenth century was a learned Italian named Guarino, whose first publication consisted of a collection of remains from a large number of Greek grammarians. This bore a very elaborate title in Greek, which was given in Latin as *Thesaurus, Cornucopiae et Horti Adonidis*, the printer informing us in his preface that it might with equal propriety be known as the "Horn of Plenty, a Thesaurus, or the Gardens of Adonis." *Hilderic Friend*

TREES AND SHRUBS.

CAMELLIAS FRUITING.

In reference to the note (p. 79) on this subject, it may be of interest to record that several plants have been raised from seeds, ripened on semi-double varieties growing in the open ground in these gardens.

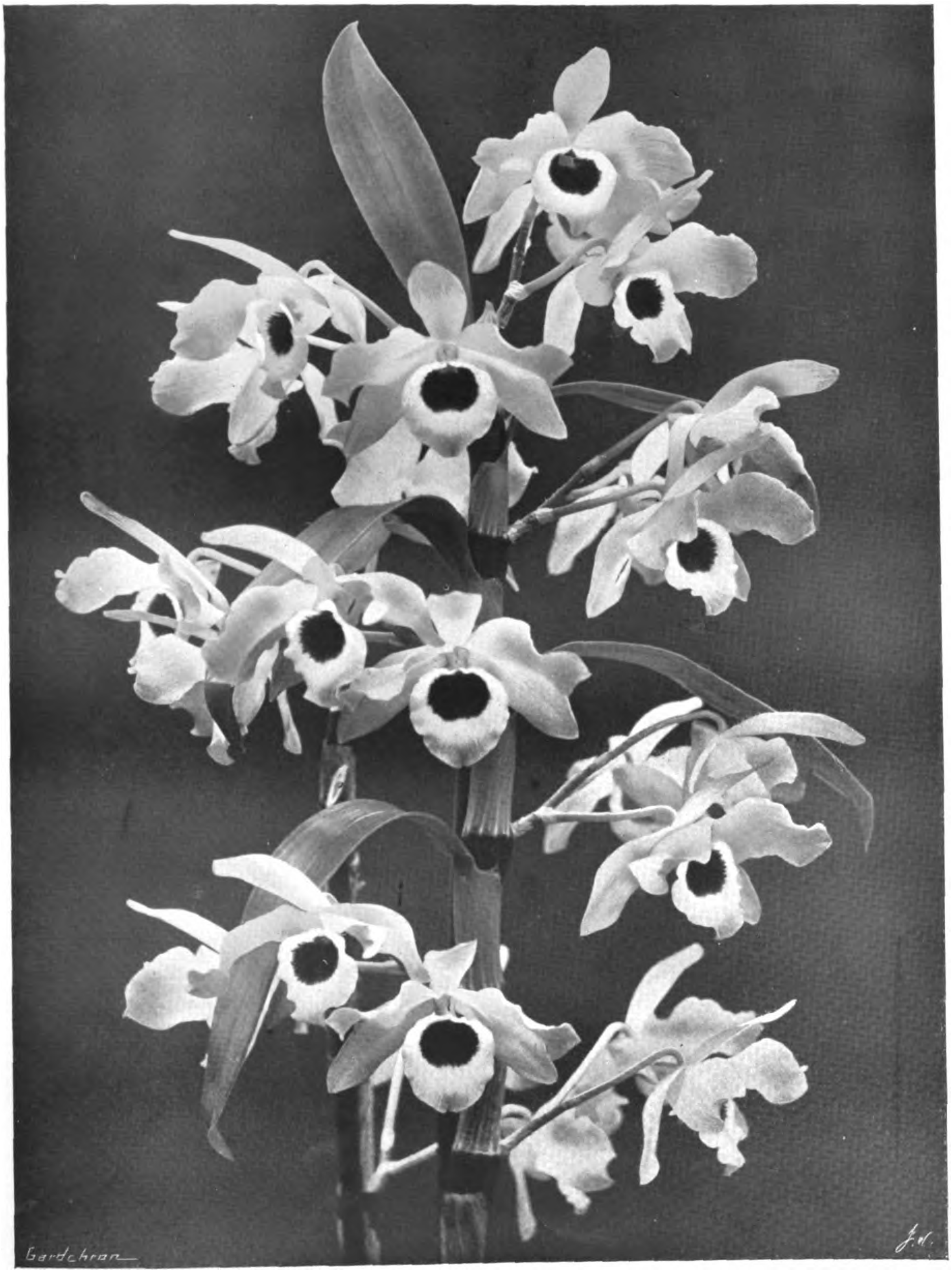
The seedlings are now about two feet in height, and will probably be planted outside this season.

C. Donckelaari and a series of semi-double varieties, such as Jupiter and Ceres, sent out about twenty years ago, by Messrs. Paul and Sons, produce seeds the most freely.

I have never seen fruit on Camellia Sasanqua or Lady Clare, though the latter is one of the best of the semi-doubles, and grows and flowers freely in the open air.

I have closely examined C. cuspidata and find that it fruited last summer; a spray cut from the bush is enclosed. *J. Comber, Nyman's Gardens, Handcross.*

Supplement to The GARDENERS' CHRONICLE



DENDROBIUM GATTON MONARCH.

RHODODENDRON NOBLEANUM.

Although nearly a century has elapsed since Rhododendron Nobleanum was raised at the Knap Hill Nursery, it still remains one of the most popular of the hybrids derived from R. arboreum, notwithstanding the competition it has to withstand from hosts of more recent introductions. Its other parent was R. caucasicum. Under favourable conditions, R. Nobleanum becomes a small tree, attaining a stature of fifteen feet, and producing an abundance of bright, rose-coloured flowers. Its precocity in blooming makes a strong appeal, for any hardy plant that flowers in January and February commends itself to garden lovers; but this early-flowering habit is also a weakness inasmuch as many of the brilliant flowers are destroyed when sharp frosts occur. In the southern and south-western counties, in south Wales and in southern Ireland, R. Nobleanum seldom suffers as a result of its efforts to brighten the early days of the new year, but, even so a sheltering screen of trees on the north and east will ensure protection from cold winds and bright sunshine. It often happens that bright sunshine acting on slightly frozen flowers will spoil the display, whereas if the flowers thaw before the sunshine reaches them little harm will be done.

The specimen illustrated (Fig. 68) represents a plant in the garden of Admiral A. W. Heneage-Vivian, at Clyne Castle, Blackpill, Swansea. It is fifteen feet high, and in mid-January carried eight hundred trusses of flowers.

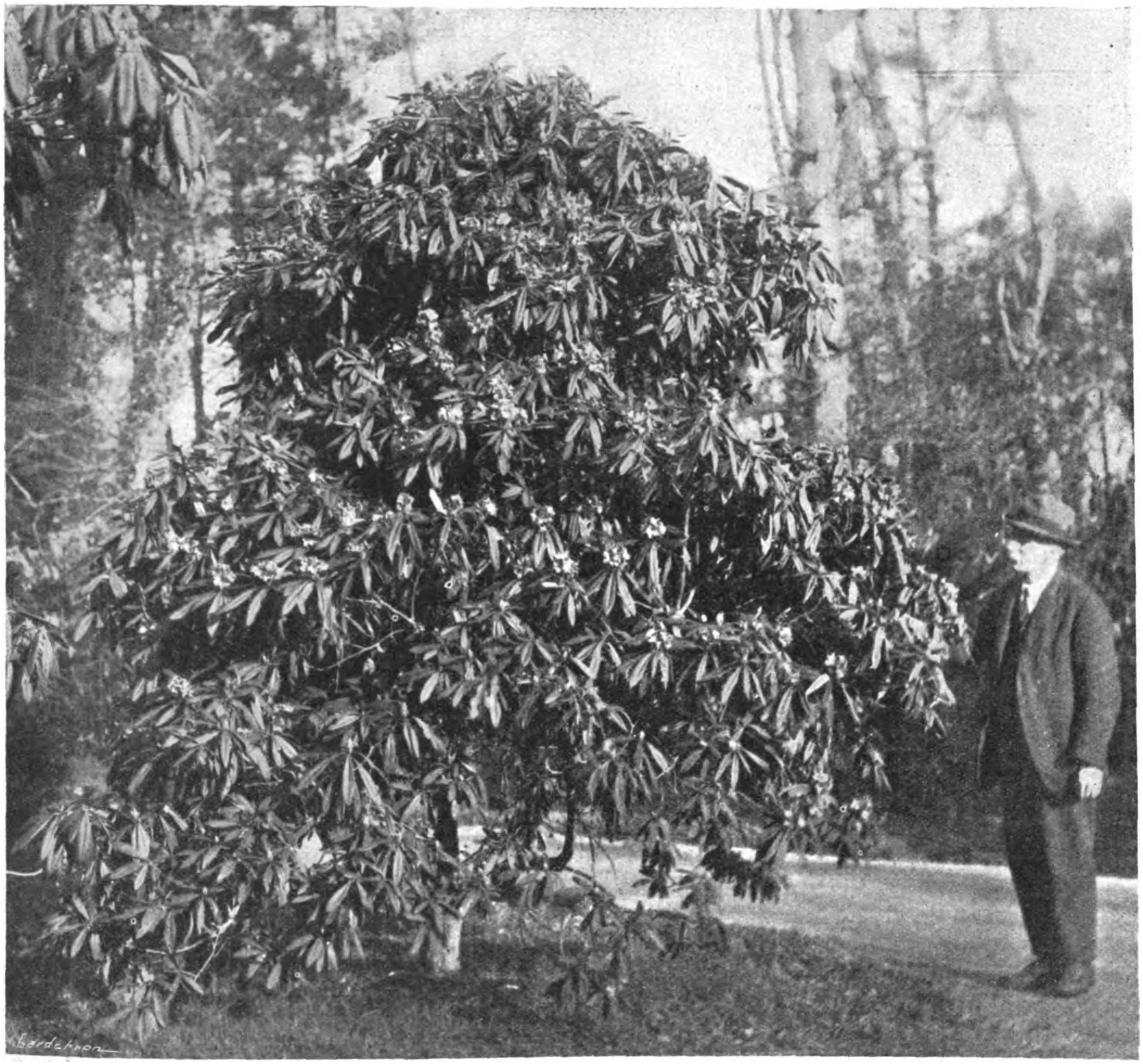


FIG. 68.—RHODODENDRON NOBLEANUM AT CLYNE CASTLE, BLACKPILL, SWANSEA.

ÆSCULUS PARVIFLORA.

Trained to a single stem, Æsculus parviflora will grow to a considerable height, but the nature of the plant is to throw up suckers and so form a broad mass some six feet or more in height and twice as much across.

The leaves, consisting of five or more leaflets, are handsome, and the upright flower panicles which terminate the branches are from six inches to ten inches in length, and proportionally wide. The flowers are pure white, to which the red anthers impart a pink flush.

In a good soil that is not too dry, Æ. parviflora will flower abundantly, and the fact that its blooming season is July and August gives the shrub an additional value. A well-grown specimen in full blossom is a most charming sight, the habit being graceful, and the abundant, tall spires of blossom singularly attractive. This species, moreover, is absolutely hardy and easy of cultivation. It is a native of the south-east United States, whence it was introduced by John Fraser in 1785. *J.*

POLYGONUM BALDSCHUANICUM AND P. AUBERTII.

In reply to Mr. R. Gardner's note in your issue of January 30 concerning the above plants, I feel sure there are sufficient botanical differences to enable anyone to distinguish the two. P. baldschuanicum has larger leaves and of a darker green than those of P. Aubertii. The former starts flowering in August, has pink flowers, and is not very free, while the latter will flower under favourable conditions by the end of June and continue flowering throughout the summer and autumn, bearing masses of nearly white flowers. The flowers are smaller than those of the former, but appear in much greater number.

P. Aubertii is by far the most preferable plant of the two, as it has a stronger constitution and is not so subject to disease. But the principal point is, that the true P. baldschuanicum does not flower so freely, and often does not flower at all the first year after planting. In the trade there is much confusion between the two kinds as they sometimes vary a little in habit and also in the colour of the flowers, which is always between pink and white. *B. Ruys, Royal Moerheim Nurseries, Dedemsvaart, Holland.*

BERBERIS SANGUINEA.

THIS evergreen Chinese Barberry is usually the first to flower here, and if it is not one of the most ornamental species there is a distinction and attractiveness about the little shrub when its bluish-green foliage is strung with the hanging yellow "lanterns," each canopied by conspicuous crimson sepals and suspended by a stalk of the same bright colour.

In dry, poor soil, B. sanguinea does not grow much higher than four feet here, but it is said to attain double that stature in a better medium. It is a very dense shrub and spiny. The long, narrow leaves are also armed at the tips, and the slender branches are gracefully arched. The fruit consists of a blue-black berry.

This is apparently a mountain species and quite hardy. It was introduced to this country from France in 1898. *A. T. Johnson, Taly Cafn, North Wales.*

PUBLIC PARKS AND GARDENS.

THE Town Council of Guildford has received sanction to borrow £5,808 for the purchase of land at Stoughton for a new recreation ground.

THE Ministry of Health recently held an inquiry at the Portishead Council Offices into an application by the Urban District Council for sanction to borrow £500 for the adaptation and development of Portishead Battery and grounds as public pleasure grounds.

THE general superintendent of the Manchester Parks (Mr. W. W. Pettigrew) has suggested to the Parks Committee that a central nursery for propagating half-hardy plants which are used for bedding and for the embellishment of the different parks and open spaces should be provided. Some of the present glasshouses are in a dilapidated condition and not therefore suitable for the purpose, and the superintendent's suggestion is that, seeing the Corportation has one hundred acres of land at the Carrington Moss nurseries for the propagation of trees, it would be an ideal place for a nursery. Last year the department raised about 300,000 plants under glass, but had to buy 12,000 Pelargoniums for bedding purposes from nurserymen.

The construction and planting of the two new parks on the southern side of the city was another subject before the Committee. The extent of the new park at Fog Lane is forty-nine acres, and that of Chorlton thirty-nine acres. No definite date, it appeared, can be given as to the availability of these parks, but it is thought probable that they may come into use in 1929. The Committee agreed, on Mr. Pettigrew's recommendation, to plant in these new parks ornamental shrubs and trees such as are not to be found in the northern parks, in consequence of unfavourable atmospheric conditions, and similar to those grown in other southern districts.

The Committee had received a letter from Professor Weiss, on behalf of the Ecological Society, expressing the appreciation of members of the Society for affording them opportunities of inspecting the Cactus house at Alexandra Park, and the fine collection of succulent plants there to be seen.

WALLASAY TOWN COUNCIL has decided to apply to the Ministry of Health for sanction to borrow £30,000, the purchase price of Upton Park. Half the area will be utilised as a recreation ground, the remaining half for other purposes.

THE Corporation of Hull has made application to the Ministry of Health for sanction to borrow £11,500 for laying out land between Pickering Road and Anlaby Park Road for public walks and pleasure grounds.

THE Urban District Council of Llandudno is to purchase five acres of land between Riviere Avenue and Rumania Drive for a recreation ground.

TETRACHLORETHANE AS A GLASS-HOUSE FUMIGANT.

SEVERAL correspondents in recent issues of *The Gardeners' Chronicle* (vol. LXXVIII, p 488, and vol. LXXIX, pp. 35 and 86) have referred to the use of tetrachlorethane as a fumigant against White or Snowy Fly on plants growing under glass, but warning should be given to all those who intend to use this chemical that serious damage will ensue if certain plants are exposed to the gas.

Tetrachlorethane ($C_2H_2Cl_4$) is a non-inflammable, volatile liquid with a boiling point of 147°C., and a specific gravity of 1·6 The advantage of using this fumigant is that the gas is not highly toxic to human beings, and may therefore be used in conservatories opening into rooms, and in small greenhouses where the measurement of a small quantity of sodium cyanide or potassium cyanide is difficult. The present price is 1/4 a pound (=1/10th of a gallon) which makes its use on a commercial scale too costly

This gas was first experimentally used against White Fly on Tomatos by the late Professor Maxwell Lefroy, at Wisley, in 1915, and later by Dr. L. Lloyd at the Lea Valley Experimental Station, Cheshunt, in 1920. (*Annals of Applied Biology*, vol. IX, No. 1, pp. 20 and 21.)

It is sometimes suggested that dipping or spraying plants with contact washes is a ready means of clearing them of White Fly, but experience shows that these operations are useless in the case of plants growing in large pots and borders by reason of the difficulty experienced in directing the wash on to the undersurfaces of the leaves where the ova, nymphs or "scales" and adults congregate. An efficient gas is able to diffuse at normal temperatures and permeate to all parts of the house.

A most important factor in the fumigation of a glasshouse is to ascertain its correct cubical capacity. Careless determinations result either in damaging the plants by an overdose of the gas or a low percentage of insect mortality due to under-estimating the required dosage.

Having ascertained the correct cubical capacity of the house, the measured quantity of the liquid is poured down the central path and the house closed for at least twelve hours; five to ten fluid ounces of tetrachlorethane are sufficient to fumigate 1,000 cubic feet of space. The actual amount of liquid used depends on (1) the season and fecundity of the pest; (2) the type of plant to be fumigated; (3) air tightness of the house; and (4) the degree of infestation. Two or three successive fumigations are essential as the gas is not toxic to the ova, and the minimum dose is often insufficient to kill all the nymphs, protected as they are by their waxy covering and position on the plant. The interval between fumigations varies from three weeks in the early spring and late autumn to ten days in the summer months.

The temperature should be between 65° and 70°, which allows for a regular evaporation and diffusion of the gas. It is not necessary to dry-off the house prior to fumigation as the gas, unlike hydrocyanic-acid gas, is insoluble in water. Fumigation should not be commenced until dusk when assimilation and respiration are reduced to minimum quantities.

Tetrachlorethane is somewhat restricted in its use against pests, for although it is highly toxic to the nymphal and adult stages of White Fly, it has little effect on plant lice (aphides), scale insects and red spider. There are several proprietary materials on the market which have tetrachlorethane as their active base.

The following lists show (A) plants that may be fumigated with safety, using from five to ten ounces to 1,000 cubic feet; and, (B) those that are liable to damage when subjected to the gas—as tested at Wisley.

Chrysanthemums (especially the white varieties), Cinerarias and Dahlias are particularly susceptible to damage by tetrachlorethane and should be removed from houses prior to fumigation. Failure to do this will result either in the plants being killed or in the severe scorching of the leaves and flower buds, the damage showing in three or four days after the operation.

List A: Safe.—Adiantum, Antirrhinum, Asparagus plumosus, Aspidistra, Asters (perennial), Beans (French), Carnations, Coleus, Cucumber, Fuchsia, Heliotrope, Marguerite, Nephrolepis exaltata, Primula malacoides, P. obconica, Sobralia, and Tomato.

List B: Not Safe.—Acer pseudoplatanus (Lloyd), Asparagus Sprengeri, Azaleas (indica, etc.), Barleria purpurea, Chrysanthemums (especially whites), Cinerarias, Dahlias, Eupatorium glandulosum, Pelargoniums (Cape), Primula sinensis, and Salvia. *G. Fox Wilson R.H.S. Laboratory, Wisley.*

FORESTRY.

THE INFLUENCE OF PROLONGED DAYLIGHT IN THE VEGETATIVE SEASON ON THE QUALITY OF CONIFEROUS TIMBER GROWN AT HIGH LATITUDES.

(*Continued from p.* 104).

AT mid-day at the summer solstice at the latitude of 64° N. the chemical intensity of the sunlight is double what it was at the vernal equinox, and probably is much in excess of the *optimum* requirements* of either the Scots Pine or the Larch, while, instead of having alternating, approximately equal, intervals of daylight and darkness, as obtains in the tropical zone, during the greater part of the growing season, they have all the advantages of the protracted illumination of the sub-arctic day, with no real night. In the illustration of the globe as shown in Fig. 69, the position of the earth's axis is represented as it is at the vernal equinox—that is, it is vertical to the plane of the ecliptic, and therefore to the path of the sun's rays, which are represented by the parallel lines. The number of units of chemical light intensity at the latitudes of 0°, 41°, 64°, and 90° are as given in Hann's *Handbook of Climatology* at that time. As seen in the lower half of the illustration† the North Pole of the earth, which has now moved in its path from the vernal equinox to the summer solstice, is inclined towards the sun at an angle of 23½° from the vertical, and at mid-day at this time these forest regions occupy the same position in the sun's rays, and receive the same amount of chemical energy, as Central Spain at the vernal equinox, while at this time the equatorial regions receive approximately one-third more chemical energy than these forest regions, but less than one-half the daylight. In effect, by the earth's movement from the spring equinox to the summer solstice these points change their positions in the sun's rays at mid-day to the extent of 1,600 miles southwards, as measured on the earth's surface, and at latitude 64° N. the units of chemical energy received in a day at the equinox (210) are more than doubled with, however, double the duration of day-light. But, as may be observed from the illustration, while every point on the earth's surface is carried southwards in the sun's rays at mid-day at the summer solstice, at midnight it is carried northwards in space by an equal amount, and, with the exception of those within the arctic circle, every one is cut out of the sun's rays daily for periods varying from approximately twelve hours at the equator to *nil* at the arctic circle.

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* It is not known exactly what are the limiting factors somewhere between which lies the degree of light intensity at which any particular plant thrives best. It varies during the lifetime of the tree, and it is subject to variation even at the different parts of the same vegetative season.

† This illustration shows the position of the earth's axis at the summer solstice, when it inclines towards the sun at an angle of 23½ degrees from the vertical to the ecliptic, and when every point on its surface is carried 23½ degrees, or over 1,600 miles, southwards, in the sun's rays daily. At midday the terrestrial latitude of 64° N. now occupies the position in the sun's rays which was occupied by the terrestrial latitude of 40½° N. at the vernal equinox, and receives 2·25 times the number of units of chemical light intensity which it received then, while the daylight is doubled in duration. All the other northern latitudes now receive light of the same chemical intensity as was enjoyed by latitudes 23½ degrees farther south at the vernal equinox. For example the northern tropic (23½° N.) has now taken the position in the sun's rays that the equator did at the vernal equinox, and receives the maximum number of 716 units of chemical light intensity, while the equator now occupies the position of the southern tropic (23½° S.).

As we have seen, both at Bailowieska (53° N.) and in Aberdeenshire (57° N.) the quality of naturally-grown timber is inferior to that of Finland and Northern Russia, and it is therefore quite obvious that the superiority of the latter is not so much due to increase in the chemical intensity as it is to the enormous increase in the duration of the daylight in the growing season. Now if, as seems to be the case, a prolongation of the duration in the growing season promotes anabolism in an annual plant like Barley, it almost goes without saying it must also do so in the case of perennial plants generally; but in the case of trees which rear their heads of foliage far above the ground, and in which the cambium cells already exist and only await the necessary warmth to enable them to function and form fresh material when the vegetative season arrives, this action must be more prompt than in the case of more lowly plants, the temperature of which must be largely controlled by that of the soil in which they grow, or of seeds such as Barley, which have, in addition, to spend some time in the process of germination before they even come under the influence of the light, and have afterwards to form superstructures before they can function. In these high latitudes all plants have, perforce, owing to the very limited duration of the growing season, to, metaphorically speaking, "make hay while the sun shines." Not only do they function at high pressure, but they work overtime in order to complete their work before the cessation of growth for the season sets in, and although they do this at a somewhat lower temperature and under weaker illumination than obtains at lower latitudes, they have a much longer working day. In fact, for a short time at the middle of the vegetative season they practically live and work in perpetual daylight. *A. D. Richardson.*

(*To be continued.*)

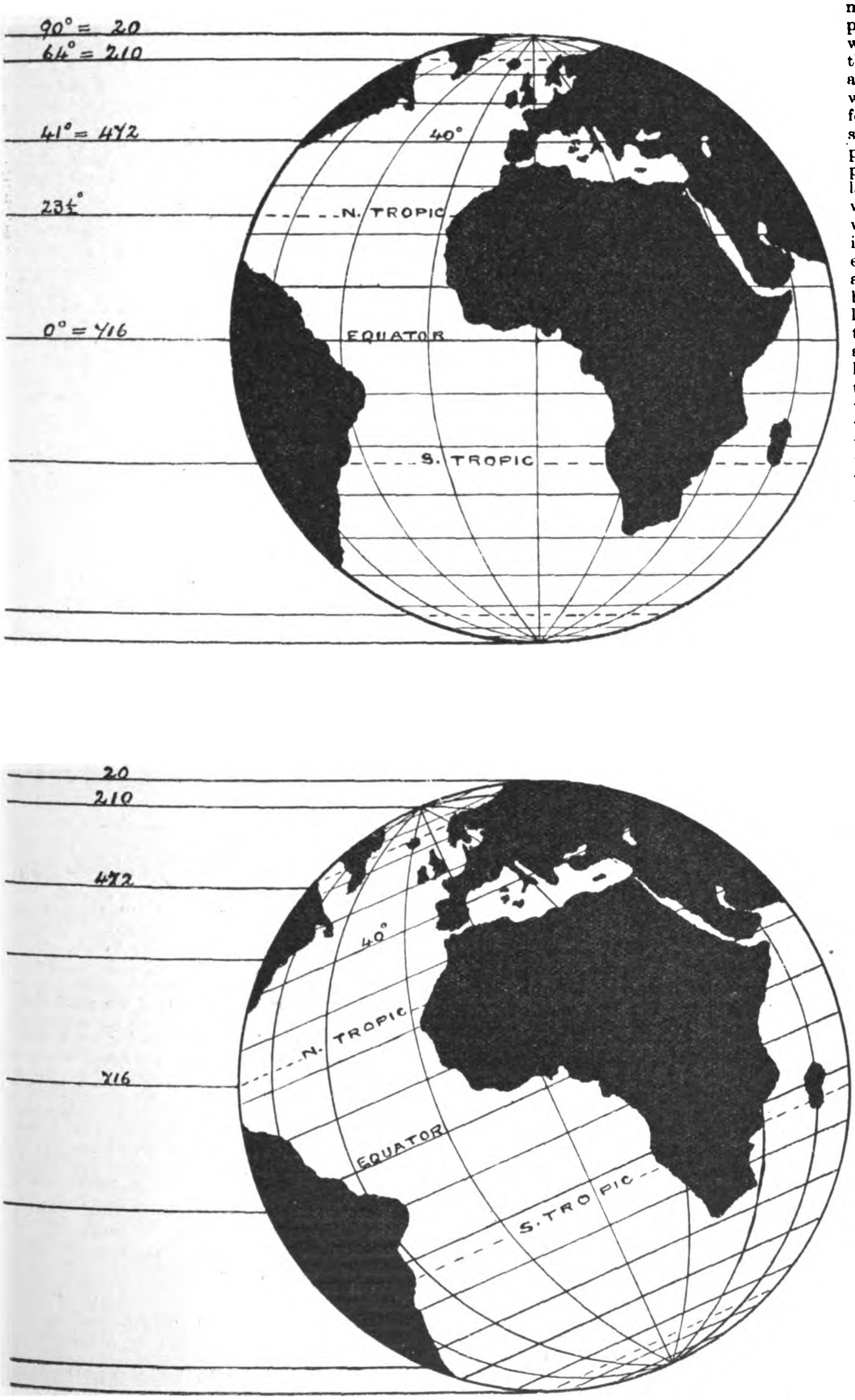

FIG. 69.—INFLUENCE OF DAYLIGHT ON THE GROWTH OF TIMBER.

Upper: Position of the Earth's axis in relation to the Sun's rays (represented by the parallel lines), at the Vernal Equinox. Lower: Position of the Earth at the Summer Solstice.

MARKET FRUIT GARDEN.

Pruning Black Currants.

I have pruned my Black Currants more severely than I expected would be necessary. It has been shown that hard pruning of this crop may result in a serious loss of yield; and, as in these days of bud mite and Nettle-head, the bushes are not likely to stand for many years, it is usually wise to fruit them as heavily as possible. But, with all varieties except Boskoop Giant, I find a difficulty in getting the bushes to make enough growth once they have started to crop. Probably mine is not really good Black Currant soil, for no treatment will induce the bushes to send up many shoots from below ground, as I have seen them do in the West Midlands, for instance.

Most of my bushes of bearing age are of the French type, and they seem to have a habit of almost stopping growth so soon as they begin to crop freely, in spite of manuring. They make splendid growth before they reach that stage. When I began pruning I found that many of the older branches, although covered with fruit spurs, looked worn out, showing little or no terminal growth. I cut them out freely, pruning to a lateral where there was a strong one, and, failing that, to within a few inches of the ground. This is simply the regulation method of pruning. I believe that most of the fruits that will be lost would have been small. Certainly the bushes look a good deal better for the treatment, which can hardly fail to stimulate a certain amount of growth. I think I have fairly well proved, however, that Boskoop Giant is really the only variety worth growing on my soil, in spite of its being more liable to bud mite than it used to be. When the plantations were young, and nearly all interplanted with Black Currants of the variety mentioned, the bushes were never pruned after they reached the fruiting stage, and yet they continued cropping and growing well until hopelessly affected by bud mite. Finding the best variety for the locality is most important with Black Currants.

SPRAYING COX'S ORANGE PIPPIN APPLE.

In preparation for the coming campaign against scab, I am trying to find out whether Cox's Orange Pippin Apple can safely be sprayed with Bordeaux mixture of full standard strength (8-8-100) when at the pink bud stage. If any gardener or grower can tell me this from actual experience I shall be very grateful. I dare not spray this variety with Bordeaux mixture of any strength after blooming. It can sometimes be done with safety, but is always too risky. I know that it will stand a good deal more before blooming, although anyone who has not tried it might imagine that the contrary would be the case. It seems curious that the tender young leaves surrounding the bloom should be less vulnerable than the mature foliage, but such is undoubtedly the case. *Market Grower.*

VEGETABLE GARDEN.

PEAS.

THE varieties of culinary Peas are so numerous that the grower is wise who relies on those sorts which he has proved to do well in his particular soil and district, and in this respect the numerous names that have been given to very similar varieties is most puzzling and causes the small grower much confusion. Peas do well on stiff and calcareous soils, and also light soils when liberally manured. They need potash, lime and phosphates, also a constant supply of moisture. On poor land they give a poor return, in fact, food and moisture in abundance are very necessary to obtain good crops of Peas. The ground should be prepared in the autumn, and if it is trenched, so much the better. Heavy manuring is not needed for the earliest crops, but for late Peas, trenching the soil and incorporating with it plenty of decayed manure and vegetable refuse always pays, provided the manure is placed below the top spit. Early Peas should be grown on ground that was trenched and heavily manured for a previous crop. In the case of late summer and autumn Peas, unless the land has been treated liberally and is good in every respect, the Peas soon lose their colour and become infested with maggots and mildew; the failure is then complete.

I do not resort to watering Peas even in a hot, dry period, but prefer spending half the time and labour in preparing the ground properly at the right season, for this gives much more satisfactory results than watering.

The rows for late Peas should always be prepared at the same time as the early ones; the manure has then time to become in a fit condition for the roots. In very dry weather the drills should be soaked with water before sowing the seeds, and the latter covered with dry soil, the rows to be mulched with half-decayed manure later. By allowing a distance of about eighteen inches on each side of the row and making the drills about three inches wide, in conjunction with a thorough preparation of the soil, watering will be rendered unnecessary even in the driest weather.

Mid-season and late Peas are so valuable that everything should be done to help the crop to pass through its most difficult periods. Large Marrow Peas should be allowed plenty of room for branching out, and be sown thinly—about three inches apart. The rows should be isolated from other tall-growing crops. Where sticks are plentiful, tall, main-crop sorts are best for planting as they are most prolific, but dwarf Peas are universally desired for small gardens on account of their quick returns and the small amount of space they occupy. The rows may vary from two feet to three feet apart; nothing is gained by close sowing, as the rows may be intercropped with Lettuces and other similar crops. The seeds may be sown from November to March.

Wrinkled Peas are usually more tender than tha round-seeded sorts, and do not germinate so well as round Peas, nor does the germinating power of the seeds last so long. Early Peas may be produced in various ways; success generally follows the sowing of an early, dwarf variety at the foot of a south wall, but one or more sowings of quick-growing varieties should be made on a sheltered border, prepared especially for the purpose, and where protection may be provided whenever necessary. On a warm soil and in a good season the plants of an early sowing on a south border give pods for use about the end of May, whilst pods from those sown on less sheltered borders are available early in June. In some seasons the crops from the February and March sowings are not more than eight or ten days behind those of the November sowings, but even a week or ten days advance in cropping is a consideration.

It is a much disputed point amongst good growers whether November sowing has any advantage over one made early in spring, as the latter crop is less subject to injury from mice, birds, insects and damp, and generally proves the most productive. Every endeavour should be made to extend the Pea season from the beginning of June until the end of October. In some seasons exceptionally good Peas may be gathered in November, but such a late crop is mainly dependent upon the season. To maintain a regular succession it is always wise to sow three or four distinct sorts at the same time, as early and second-early varieties sown during February and March will not vary more than a week or ten days in the date of cropping. In April the succeeding crops may be sown so soon as the preceding one is through the ground. Dusting the rows on frequent occasions with soot is to be recommended, and a little soil should be drawn up to the rows so soon as the Peas are well through the ground. The sticks should be placed in position early, filling in between the large sticks at the base with twiggy material to enable tall-growing varieties to ascend, and to protect them from cold winds.

In the trial of early Peas at Wisley in 1920 some well-known varieties failed to justify the awards given them in 1915. To those who have a sheltered position and favour sowing in November, or later if unfavourable at that time, I recommend Superb, Earliest of All and Eclipse in the dwarf section, and Primo, Pilot Improved and Essex Star in the tall section, in the order named.

I do not like omitting William the First, but Essex Star has a better constitution. All these varieties may be relied upon to mature pods the last week in May or first week in June, according to the season.

For spring sowing we have choice of many dwarf varieties, but I would again put Laxton's Superb first, especially for growing in cold soils. We have Reading Wonder, Little Marvel, Laxton's Progress, Pioneer, Hundredfold, and Excelsior to follow, and of the newer varieties Kelvedon Wonder, Giant Stride and Marvellous Improved, all of which are worthy of extended trials. If sown in February or early in March, all the above sorts may be regarded as first-earlies, and the crop will be ready the first or second week in June. Taller varieties suitable for this sowing, besides those named, are Prosperity, Electricity, First of All, Express, Early Morn and Bedford Champion, the last a grand Pea, superior to Gradus. Second-earlies and main-crop sorts include, in the dwarf section, Senator, Victory, Beauty and Yorkshire Hero, to supplement those already recommended. Tall varieties include Admiral Beatty, Stourbridge Marrow, Alderman, Duke of Albany, Reliance, Peerless Marrow and Lancastrian. These varieties sown during April and May will take about thirteen or fourteen weeks to mature their pods in an ordinary season. New main crop varieties of great merit are King George, King of Peas, Sharp's Renown, Northern Record and Premier. Late varieties of merit, which should not be sown later than the second week in June, are Ne Plus Ultra—this variety has been subject to mildew in recent years, Omega, August Monarch, Captain Cuttle, Late Queen and The Gladstone, the last an excellent cropper and possibly the most reliable late Pea in cultivation.

Some of the hardy early varieties are worth growing, being especially good in a favourable season on a warm border. Much, however, depends on the weather of September.

There are many other varieties that will compare most favourably with the above selections, and different growers may have a preference for some of these sorts, yet those recommended are good growers, good croppers, and give Peas of excellent table quality. *F. Jordan.*

FORCING LETTUCE.

THE variety of Lettuce called Grand Rapids in America was grown at Wisley in the trials under glass in 1924-5, along with another of the same type—known variously as Tomhannock, Prize Head, and American Gathering—also largely grown in America, and it has been grown in other ways on other occasions. Tomhannock is red-tinged and white-seeded. Grand Rapids, wholly green and black-seeded. Both are very large Lettuces of good quality, tender, crisp and rather bitter in flavour. Both gave a very fair account of themselves under glass, but they belong to a group that has not found favour in British horticulture up to the present for instead of making hearts (as all well-conducted Lettuces should do) the centre of the mature plant is occupied by a tightly-bunched group of frilled and blistered leaves, not overlapping as in the well-known hearting varieties. Grand Rapids is known and grown by a few in this country under the name of Winter Gathering.

That excellent Lettuce for growing under glass which shared with the new Dutch variety Nunhem, the distinction of F.C.C., called Gotte a Graine Noire in the country of its origin, but known here as Early French Frame, is of the normal hearting type. It is much smaller than Grand Rapids, and neither It or Nunhem is suitable for out-door cultivatioun. Both, however, are highly to be recommended for this special purpose.

As your note (p. 74) states, Stanstead Park and Hardy Green Hammersmith, old Cabbage varieties, both well held their own out-doors in the trials of autumn-sown Lettuces, but both were greatly surpassed by Nunhem and Early French Frame under glass. *Fred J. Chittenden, Wisley.*

HOME CORRESPONDENCE.

[The Editors do not hold themselves responsible for the opinions expressed by correspondents].

Frost and Insects.—In reply to Mr. G. C. Johnson, p. 68 after twenty-three degrees of frost on the 16th ult., and a consecutive frost of about 115 hours, I found numbers of the small black slug and the brown slug among and under the leaves of Lamb's Cress, growing on a south border in the open. If my memory serves me right, there was not any perceptible decrease in the insect world in the summers following the great storms of 1895 and 1917. Concerning snails or slugs, there is a small black one in this district which will take a lot of beating for mischief, and is at all times very plentiful. *J. E. L.*

Awards at the Royal Horticultural Hall.—As a fairly regular visitor to the fortnightly meetings of the R.H.S. at Vincent Square, I have often been puzzled by the way awards are made to certain exhibits. The *Book of Arrangements* states that the "Gold Medal is awarded to exhibits of special excellence," but it conveys no indication of how this is to be interpreted. It must be extremely difficult for the Council or a committee to decide when an exhibit is worthy of a gold medal, and it would almost appear that the standard varies. I could understand that two exhibits of Orchids at the meeting of January 12 were worthy of a gold medal, but could not understand why the fine exhibit of vegetables failed to receive similar recognition. In it, I counted over 120 dishes of distinct sorts, and although no one would pretend that the specimens were as perfect as if shown in September or October, I thought they were as perfect as any one could produce them in

January. Trade exhibitors may or may not trouble themselves about R.H.S. awards at these shows: if they do not, then surely it is time the Council ceased to make awards to their displays, especially as the members of the horticultural press have usually made their notes and left the hall before the Council has issued the list of awards. *A Fellow.*

Memories of Dr. William Bateson.—A correspondent who desires to remain anonymous, writes: "Though perhaps a little outside the scope of an obituary notice in this paper, I feel that no picture of the late Dr. William Bateson would be complete without a reference to his very human enjoyment of the good things of life which lay outside his work. A new artist, or that rarer thing, a new joke, had his quick and undivided attention and the reward it deserved. The writer remembers his delight when he first came upon the remarkable collection of Samian pottery in the Reading Museum, or again at a recent agricultural show when a collection of local handicrafts captured his attention for some time. A quick glance showed him which things were worthy of closer inspection, and he studied for some time a silver bowl, making suggestions to the designer. A little further on a mechanical nightingale in a cage was given the same fresh attention. It was amusing to sit near him while a game, perhaps of croquet, was in progress. The players would be admonished, cheered and jeered at, and in the midst of it all he would turn to a neighbour and say, "Yes, it is the question of inter-sterility we want to get at." It was this almost boyish zest that made it possible for him to turn from animals to plants so soon as Mendel's work was re-published, and in a very short time he got a good grasp of many branches of horticulture, and even appeared as a witness in a famous law suit when the identity of Gradus Pea was in question. Though his interest was primarily scientific—an endeavour to get at the laws beneath the appearances—one noted a certain satisfaction when some fact of practical utility emerged as a bye-product. Like all men absorbed in their work, Bateson was a little difficult of access a very natural protection; but to those who knew him better he was a constant source of delight. His knowledge and love of art, his quick eye for human weaknesses and a constant sense of humour, made the Bateson of private life a very different person from the eminent scientist lecturing before a learned society. His view of horticulture was never doctrinaire, and he realised that in dealing with things in the mass, such for instance as seed-growing, it is impossible to expect the accuracy which the laboratory demands. Horticulture is the poorer by his loss, and those who knew him cherish the memory of a great man who showed that wisdom and humour may dwell together in amity."

Onions.—On page 86, Mr Roy indicates an alternative method of Onion culture to the one I recommended in my note (page 34). The statement that to pot off the seedlings into thumb pots "is quite unnecessary" is very definite. It seems to me that many things which are quite unnecessary may be desirable in order to attain the best results. Such was my object when I penned my note, and I maintain that the potting off process gives a higher yield of produce than any other method of cultivation. I have proved it in practice. It is rather remarkable to learn that one can safely feed the Onion crop at any time. The information abolishes the need of any further teaching in matters of plant nutrition. My experience has been that "thick neck" is liable to develop if feeding commences too early, and second growth supervenes if feeding is continued too late. Though the nomenclature of vegetable varieties is somewhat confused, I have never considered that Premier and Ailsa Craig were synonymous. In my judgment the two varieties are distinct in habit of growth and shape of bulb. There is a resemblance between Ailsa Craig and Cranston's Excelsior, in fact, some strains of the two varieties appear to be synonymous. *Geo. H. Copley, N.D.H.*

SOCIETIES.

BRITISH MYCOLOGICAL

A MEETING of the above Society was held at University College, London, on January 23, with Dr. G. H. Pethybridge, President, in the chair.

The first paper was by Mr. W. M. Ware, who gave an account of Pseudoperonospora Humuli and its mycelial invasion of the host plant. A characteristic of downy mildew or "spike" disease of the Hop is the production of "spikes"—arrested growths from both the rootstock and the main bine. Continuous observation and investigation of the disease were made throughout the growing season of 1925, and nursery sets were examined during the early winter. It was found that the mycelium of the fungus may overwinter in the underground parts of the host, and though the mycelium found has not been definitely connected with its fruiting stage, there is little doubt of its identity. The inference is that in early spring it probably invades developing buds, and either overwhelms the young shoot, producing a basal "spike," or is carried by the rapidly elongating bine close behind the growing point. In the latter case the mycelium may be carried up to a considerable height in its entirety, or small quantities may be deposited at nodes during the rapid growth of the bine: thus we could account for diseased laterals at isolated nodes and terminal spikes at any height from the ground. Actual transference of the mycelium has not yet been observed, however, and early external infection may prove responsible for some or perhaps all of the spiked growths.

An account was given of the discovery and investigation of the internal mycelial invasion of the Hop plant. Mycelium is present within the cortex and pith of the stem of "spiked" growths from the rootstock, and is also present in one-year-old portions of the rootstock. In longer bines with terminal or lateral "spikes" the mycelium is present within the bine but is not necessarily continuous, and healthy intermediate nodes and internodes may be found. The fungus has not been found at the base of such longer bines. The mycelium is present in the winter not only in the pith and cortex of nursery "sets," but it has also been found in the cortex of the roots. Oospores occur plentifully in the pith of terminal and lateral spikes and within the bracts and bracteoles of the Hop "cone."

Kodak, Ltd., then demonstrated the Eastman Colorimeter. The instrument affords a basis for accurate colour measurement. Neutral light filters modify the intensity of light passing through standard comparator filters to equal that on the colour to be tested. Standards are then modified until the colour in the two halves of a visual field, one of which is the object to be tested, agree.

Mr. B. Barnes followed with some preliminary observations of the physiology of Lachnea. A species of Lachnea grown on media containing nitrogenous material with a low carbohydrate content, gives the conidial, Acmosporium, stage, followed by the apothecial stage. On media with more carbohydrate the conidial stage appears occasionally, followed by secondarily formed apothecia. The conditions which determine the appearance of one or the other stage are being analysed, and the relation between the composition of the media and the development of mycelial fusions. As ascospores of Lachnea have not been germinated, it is thought that the Acmosporium-Lachnea combination, which shows no sexual phenomena, is an ascomycete with a hyphomycetous bias.

After lunch, Mr. Chastin Chapman, President of the Royal Microscopical Society, spoke on the need for a national institute of microbiology. The study of the precise way that living organisms exercise their vital activities stands out prominently from the problem of bio-chemistry. The inefficient clumsiness of laboratory methods of synthesis compared with natural methods is striking, and it is by closer study of the living cell that the chemist may hope for a new era of industrial organic chemistry.

There are many industrial processes in which micro-organisms are the active agents. Glycerine is produced on a large scale by the fermentation of sugar, moulds are used for the saccharification of starch. Vinegar, lactic, butyric and other acids are manufactured by fermentation processes, and micro-organisms are also important in agriculture, in dairy work and in the treatment of sewage. Many biological industries in this country, representing a large amount of trade, have made little or no process since their beginning, and it is to be hoped that industrial micro-biology may share the present enthusiasm for scientific research. In 1923 a joint meeting of the Society of Chemical Industry and the Biochemical Society supported a scheme for the founding of a national institute of microbiology. Such an institute would provide for research in the industries in which micro-organisms are concerned, it would serve as a centre for specialised training in microbiology and afford opportunities for instruction of technical employees engaged in biological industries. In addition, it would house a complete collection of pure cultures of industrial micro-organisms and supply these as required in large quantities for industrial purposes and generally serve as a home for British industrial microbiology. Such an institution with the right men behind it would quickly be self-supporting, but to become successful it would need to be a separate national institute and not a department of any existing teaching institution.

A resolution was carried unanimously that "The members of the British Mycological Society are of the opinion that it is most desirable that a National Institute of Microbiology should be established in this country."

Mr. G. Tandy then gave an account of the cytology of Pyronema domesticum, Sacc. In the fertilisation of this species the nuclei fuse in pairs in the oogonium, but haploid and diploid nuclei are found in the ascogenous hyphae. The definitive nucleus of the ascus is sometimes diploid and sometimes tetraploid. The nuclei of the bi-nucleate stage are sometimes diploid and sometimes haploid as are the nuclei at the quadri-nucleate stage, but in no case has a diploid spore nucleus been seen. It is suggested that the fusion in the oogonium may miss, but that the double fusion is compensated for by two reductions.

The last contribution was by Mr. J. Ramsbottom, with the title Fragmenta Mycologica V. This included an account of a visit to the veteran mycologist of the Trentino, Abbé G. Bresadola, and an exhibit of photographs; also a display of a large number of air photographs which had been loaned by Mr. O. G. S. Crawford, Archaeologist to the Ordnance Survey, the photograph showing "fairy rings" of various sizes and stages of fusion.

FÉDERATION HORTICOLE PROFESSIONNELLE INTERNATIONALE.

THE registration of the following novelties have been submitted to the International Bureau of Registration:—Gladiolus Margaret Lewtas: a very early flowering variety with spikes thirty-six to forty-five inches tall, containing some twenty or more blooms of cerise-red colour.

Gladiolus Sarah Wood:—A large, bright red variety with a silvery sheen on the inside of the petals. The stem is straight and vigorous. Both these were raised by MISS NELLIE M. STOCKFORD, Woolwich Street, Guelph, Ontario, Canada

Rose Agnes.—A cross between Rosa rugosa and Persian Yellow, the habit, texture and colour of the leaves resembling R. rugosa. The flowers are double, of pale amber colour, fragrant, and develop early, but the variety only blooms once during the season. Raised by the late Mr. W. Saunders, Ottawa, Canada.

Gladiolus Lauretta Peer—A seedling variety, the parentage being unknown. The colour is light purple, and deep purple in the throat, the mid-vein on the petals being light. The spike usually carries about fifteen flowers which are closely arranged on the inflorescence.

Gladiolus John Wesley.—This seedling has three-cornered segments of salmon-pink colour suffused with deep red inside, the mid-vein being lighter. The flowers are about five-and-a-half inches across, sixteen to seventeen being borne on a vigorous, erect spike. Both raised by Mr. J. WESLEY PEER, Lorne Park, Ontario, Canada.

Strawberry Scugog.—A cross between Rango (a seedling raised by Mr. Crawford) and Bubach. The variety is a heavy cropper. The fruits are of a good colour, have very little core, a solid centre and fair flavour. It is a vigorous grower. Raised by Mr. CHAS. BYRON CRAWFORD Cooksville, Ontario.

ROYAL GARDENERS' ORPHAN FUND.

THE Annual Meeting of The Royal Gardeners' Orphan Fund was held on the 3rd inst., at Simpson's Restaurant, Strand. Mr. D. Ingamells, chairman of committee, presided, and those present included Mr. J. F. McLeod, Mr. D. Campbell, Mr. H. J. Jones, Mr. C. H. Curtis, Mr. J. Gregory, Mr. J. Cull, Mr. J. M. Bridgeford, Mr. D. Swain, Mr. R. B. Leech, Mr. J. Wort, Mr. W. Howe, Mr. G. F. Tinley, Mr. A. Dawkins, Mr. A. Harris and Mr. A. C. Bartlett (Secretary). After the notice convening the meeting and the minutes of the previous annual meeting had been read, the chairman called upon the secretary to read the report of the executive committee for 1925, of which the following are extracts :—

EXTRACTS FROM THE REPORT OF THE EXECUTIVE COMMITTEE.

Your committee are most pleased to be able to report that Her Majesty the Queen has graciously consented to become the Patron of the Fund.

Your committee offer grateful thanks to all the subscribers and donors for their continued support which enables them to extend the relief to the orphan children who have been so unfortunate as to be deprived of their fathers. In addition to the customary allowances it has thus been made possible for the committee to continue the allowance for a further twelve months to several of the children who have won scholarships at their schools. In these cases the head-masters have written giving their scholars exceedingly good reports, and have expressed their unqualified opinions of the value the extended education will be to the children individually, and, it is hoped, to the country in the near future. In every instance the widowed mother has made great sacrifices in order to give her child the best possible start in life, but it has been fully evident that her hopes and desires could not have been realised without the help she receives from the Fund.

As will be seen in the Statement of Accounts the total income of the Fund, from all sources, during the past year, including the balance from 1924, amounts to £5,162 2s. 11d. This includes legacies of £500 from the late Sir Harry J. Veitch, and of £50 from the late Mr. J. P. Jones, of Reading, and the repayment of the Great Indian Peninsula Railway Stock held by the Fund. The investment of the legacies, etc., has enabled the committee to do something towards restoring the Invested Funds to their pre-war position. Your committee would point out that all legacies must be invested in approved stock and only the interest is available, and to carry on its work the Fund has to rely principally on annual subscriptions and donations.

The Annual Festival Dinner, which was held at the Hotel Victoria last May, again proved to be very successful, and your committee would offer their sincere thanks to Sir Alfred Mond, Bt., M.P., who very kindly presided and made a donation of one hundred guineas.

Your committee again wish to acknowledge with heartiest thanks the valued contributions from the following gardening associations during the past year. The Altrincham and District Gardeners' Improvement Society, Croydon Horticultural Society, Parkstone Gardeners' Association, Leeds Paxton Society, Royal Caledonian Horticultural Society, Croydon Chrysanthemum Society, Egham and District Horticultural Society, Wimbledon Gardeners' Mutual Improvement Society, Bradford Paxton Society, Dumfries and District Horticultural Society, Bournemouth and District Gardeners' Mutual Society, Sevenoaks Gardeners' Society and the West Kent Chrysanthemum Society.

Considerable amounts were collected by Mr. W. Auton, Pyrford Court Gardens, Woking; Mr. T. H. Cook of the Royal Gardens, Sandringham; Mr. F. C. Stainsby, lately of Brocklesby Park Gardens, Lincolnshire; Mr. T. Pateman, Brocket Hall Gardens, Hatfield; Mr. Wm. Rowe, Squerreys Court Gardens, Westerham; and Messrs. Wm. Thomson and Sons, Clovenfords, chiefly by means of concerts and other entertainments. Your committee desire to record their great appreciation of the work thus done on behalf of the Fund.

In addition to the loss the Fund has sustained through the death of its Royal Patron, your committee is deeply grieved to have also to record the deaths of Arthur W. Sutton, Esq., who was long a valued vice-president, and Whitpaine Nutting, Esq., who for many years was a member of the committee and a most generous supporter of the Fund.

The chairman moved the adoption of the report and balance sheet, which he stated was very satisfactory, and he congratulated the Fund on reaching the happy position of being able to give a little additional help to those orphans that needed it. Mr. C. H. Curtis seconded the adoption of the report, and in doing so, stated that the balance sheet showed an excellent state of affairs; he congratulated the committee on being able to place on the Fund all the candidates seeking election.

The secretary referred to items in the balance sheet, in which it was shown that subscriptions amounted to £256 7s. 9d., and donations to £406 1s. 2d. The proceeds of the annual festival dinner totalled £749 13s. 0d., dividends on stock, interest, etc., came to £386 8s. 4d., and together with legacies, and balance from 1924, the total income amounted to £5,162 2s. 11d. The principal payments were £1,037 15s. 0d. in respect of children's allowances, secretary's salary and establishment charges, £231 18s. 10d.; printing, stationery and postages, £117 9s. 11d. Both the report and balance sheet were adopted without further comment.

Reference was made to Her Majesty The Queen graciously consenting to become Patron of the Fund, and in this connection the meeting offered sincere thanks to Lord Lambourne for his kindness in this matter, and desired his lordship to convey the Fund's loyal and dutiful thanks to Her Majesty. Sir Alfred Mond was elected vice-president of the Fund, and a hearty vote of thanks passed to him for presiding at the last annual festival dinner.

The election of officers was the next business; Mr. E. Sherwood was re-appointed treasurer; the retiring members of the committee, Messrs. A. Dawkins, J. E. Dixon, R. Findlay, H. J. Jones, D. Campbell, G. Reynolds and F. C. Stainsby, were re-elected, and Mr. Herbert R. Nutting elected to the vacancy caused by the death of Mr. Whitpaine Nutting. The retiring auditor, Mr. R. A. Witty was also re-elected. The chairman proposed the election of Mr. A. C. Bartlett as Secretary and said his work on behalf of the Fund during the past year had been very satisfactory and that he had proved an efficient and sympathetic secretary. This concluded the formal business, and the meeting next proceeded to the election of seven candidates. There being no necessity to take a poll the whole of these orphans, whose claims had been considered by the committee, were elected by resolution; the names of the children were published in our issue for February 13, p. 109. A vote of thanks to the chairman concluded the proceedings.

READING AND DISTRICT GARDENERS'.

THE first fortnightly meeting of the spring session was held in the Club Room, Abbey Hall, on Monday, the 25th ult., when there was a crowded attendance, presided over by the newly-elected Chairman, Mr. F. J. Green.

This meeting was set apart for the reading of essays in a competition for young members, and the innovation proved a great success. In the spring of last year, Mr. Councillor T. Waldron offered to give prizes to encourage the younger members to take a deeper interest in the work of the Association by giving lectures at the meetings. The papers read were most practical, and the cultural details excellent. Great interest was manifested by the members and Mr. H. F. Simmons, one of the oldest members of the Association, was so impressed by the educational value of the competition that he asked permission to double the value of the prize money, whilst Mr. Waldron offered to give similar prizes again next year. At the close of the reading of the papers a vote was taken as to the merits of the different subjects, with the following result:—First prize, "Lawns from Seed," Mr. G. F. Drew; second prize, "Garden Pests," Mr. J. Drew; third prize, "The Culture of the Japanese Chrysanthemum for Exhibition," Mr. S. A. Pearce; and fourth prize, "Sweet Peas and their Culture for Exhibition." Congratulations were tendered to the writers, and were replied to by Mr. G. F. Drew and Mr. S. A. Pearce, thus bringing to a close a most interesting and enjoyable evening.

Mr. T. C. WAITE, Verona, Basingstoke Road, staged several varieties of Apples, all in good condition, to which the judges directed special attention.

A LARGE attendance of the members assembled on Tuesday, the 9th inst., under the chairmanship of Mr. Frank E. Moring, to hear a lecture on "Sweet Peas" by Mr. E. R. Janes, of Messrs. Sutton and Sons. The lecturer claimed for the Sweet Pea that it was the most beautiful of all annual flowers, and proceeded to give the fullest details of its culture for exhibition and garden decoration. The first and most important question, he said, was the time of sowing, and in his opinion, autumn sowing was preferable to spring sowing, as the former gave a longer period for root development, and the seedlings were ready for planting out at the end of February or beginning of March. An interesting discussion followed the lecturer's remarks. Among the varieties recommended were Avalanche, Constance Hinton, Black-seeded Cream, Youth, Hébe, Picture, Charming, Mammoth, Royal Scot, Warrior, Powerscourt and Mrs. Tom Jones. A series of lantern slides showing a year's work in Sweet Pea culture, from seed-sowing in September until the plants finally pass out of flower, added greatly to the interest of the lecture. The only exhibit was from Mr. G. CLARK, Dyson's Wood Gardens, who staged several fine sticks of Rhubarb, to which an Award of Merit was given. Seven new members were elected.

ROYAL CALEDONIAN HORTICULTURAL.

ANNUAL MEETING.

THE annual general meeting of this Society was held in Dowell's Rooms, George Street, Edinburgh, on the 13th inst., with Mr. Fife, the retiring president, in the chair. The report by the Council stated that the Society has had a satisfactory year, and that the International Show was a great success, financially and otherwise. There was, however, a considerable deficit on the Spring Show, and it had been decided to discontinue this meantime.

Mr. A. D. Richardson submitted the financial position of the Society to severe criticism. He pointed out that while there was a steady increase in the number of admissions to membership on the 5s. scale, the numbers on the higher scales were either decreasing or practically stationary, and that since the incorporation of the Scottish Horticultural Association with the Society in 1921, the average subscription per member had decreased from approximately 9s. to 8s. last year. There was a deficit on the revenue and expenditure account of £52 4s. 2d., and, with a sum of £366 19s. 11d. due to sundry creditors at the close of the financial year, the deficit on the current year's account would be over £450. Where was this to come from? It was quite impossible to run a society such as this on a 5s. subscription, and hopeless to try to exist on show surpluses. The only source from which deficits could be made good therefore was the funds, which at present stood at £864 12s. 4d.

Mr. Richardson moved the adoption of the following motions, of which he had given notice: (1) That, in order to afford members residing in country districts an opportunity to attend, in future the annual general meeting of the Society be held in the afternoon instead of the evening, as was the practice prior to 1921; and (2) that at least two of the vacancies in the Council be filled annually by members residing elsewhere than in greater Edinburgh, and that they be nominated by the Council. These motions he submitted, he said, as an act of justice to two-thirds of the members of the Society who, owing to the impossibility of attending at the inconvenient hour (7 p.m.) to which the annual general meeting was now held, were prevented from taking any part in the business of the Society. The motions were, however, defeated by substantial majorities.

Mr. Richardson also moved that the Council resume negotiations with the Board of Agriculture for Scotland on the scheme for the suppression of plant pests which was submitted to it by the Society in 1923, upon which a committee of the Council, of which he was a member, with two co-opted members, spent much time, and regarding which the report by the Council stated that nothing more was likely to be heard of from the Board. The motion, however, failed to find a seconder, and he warned the Council that, after the assurance the committee received from the chairman of the joint meeting of the committee and the Board's representatives that the Board had decided to set up test stations, the action of the Council in endeavouring to induce the Royal Horticultural Society to come into Scotland to do so, if persisted in, would meet with strenuous opposition outside.

Lord Elphinstone was re-elected honorary president, and the other vacancies were filled as follows:—President, Mr. W. J. Thomsons, Vice-president, Mr. J. H. Alexander: Councillor: Messrs. R. L. Scarlett, W. Fife, R. L. Harrow and E. P. Laird.

Votes of thanks to the retiring office-bearers and the chairman concluded the meeting.

Obituary.

Valère Bouckenooghe.—The many English friends of this renowned Belgian horticulturist will grieve to learn of his sudden decease at Ypres on February 9. Mons. V. Bouckenooghe was sixty years of age and remained at work until the end. When a young man, he went as a student gardener to the Royal Botanic Gardens, Kew, leaving in 1892. He later worked for a considerable period in the Belgian Congo, and for his services there was awarded the Décoration Spéciale Agricole of the Second Class. Returning to Belgium, he became interested in commercial work, and was well-known as the Managing Director of a large and successful nursery established at Ypres. Grapes, Carnations, Arum Lilies, Lilacs and foliage plants were grown on a considerable scale. In one season twenty-five tons of Grapes were sent from the establishment to Covent Garden; in the early days of the Great War the first British battalion to enter Ypres was given temporary shelter in his largest vinery, which covered one acre. Shortly before the commencement of hostilities, Mons. Bouckenooghe conducted a party of British horticulturists around the town pointing out features of interest. During the distressful months which followed hostilities, Mons. Bouckenooghe and family were forced to leave the war zone and found refuge in England. He frequently spoke of the kindness they received during their sojourn in England from many friends, especially from Mr. and Mrs. Brunton, at Burnley. On their return to Ypres they found their house in ruins and hardly a trace left of the once prosperous nursery. Conditions did not permit of the business being recommenced, and Mons. Bouckenooghe's services were required as Commissaire d'Etat in connection with valuation of land and property for war damages. Quite recently he received the honour of appointment as Chevalier de l'Ordre de la Couronne de Belgique. He was the first honorary member of the British Club at Ypres, and by his kind and generous nature won the esteem and gratitude of the British Colony resident at Ypres since the war. He assisted them in their work and difficulties and frequently joined in their recreation. Many societies, both Belgian and British were represented at the impressive funeral service on Friday, February 12. Our deep sympathy is extended to Madame Bouckenooghe who is a real friend of the British people, and to the two sons, the elder of whom follows the horticultural profession with Mr. Engelmann, at Saffron Walden, the younger being on military service in Belgium.

ANSWERS TO CORRESPONDENTS.

Carnations Diseased.—*W. A.* The trouble is apparently what is known as stigmonose, caused by the puncture of some sucking insect, probably, in this case, thrips; if indoors, the species likely to be causing the damage is Heliothrips haemorrhoidalis; if out-doors, several species might be concerned. The spots, at first pale yellow in colour, turn a purplish-red later. The tissues of the leaf collapse, turn yellow and wither, and the plants may become stunted. If the plants are indoors, fumigation with hydrocyanic acid would be effective; out of doors, spraying with nicotine and soap solution is best, though many gardeners rely on regular spraying with ordinary water. Frequent stirring of the soil around the base of the plants is also said to help keep these pests in check.

Forthcoming Shows.—*A. E. B.* There is a list of horticultural societies with names and addresses of secretaries in our *Horticultural Directory* (latest edition 1924, price 2/-, post free), but if you desire the dates of the shows to be held in 1926, we can supply this information, also with the names and addresses of the secretaries, on typed sheets, for the sum of 2/7, post free.

Lime-Sulphur Wash.—*G. P.* The home-boiling of lime-sulphur wash is a messy business, and when it is done one cannot really tell what dilution to use without having a hydrometer to test the specific gravity of the concentrated liquid. An iron "copper" with a fire under it is required. Suitable quantities would be 42 lb of lime; 56 lb. of sulphur, and 25 gallons of water. The lime, which must be in lumps, is placed in the copper, slaked with a little water first, and then the rest of the water added. The contents are now brought to the boil, and kept gently boiling while the sulphur is added. This should be done gradually, in small quantities at a time. The mixture should boil for an hour after all the sulphur has been added. A little water will have to be added to make up for that lost by evaporation. As home-boiled lime-sulphur is always weaker than factory-boiled, you would no doubt be safe in using it for winter spraying at a dilution of one part in twelve.

Names of Fruit.—*J. C.* 1, Adams's Pearmain; 2 and 11, Northern Greening; 3, Broad Eyed Pippin; 4, Herefordshire Pearmain; 5, Mabbot's Pearmain; 6, Hormead Pearmain; 7, Ribston Pippin; 8 and 10, Melon; 12, Fearn's Pippin. *W. T. J.* 1, Ashmead's Kernel; 2, Nancy Jackson. *A. P.* Harvey's Wiltshire Defiance.

Names of Plants. *M. C.* 1, Sequoia sempervirens; 2, Cryptomeria japonica; 3, Pinus Strobus; 4, Abies lasiocarpa; 5, A. pectinata; 6, Cupressus pisifera var. plumosa; 7, Thuya plicata; 8, Cupressus Lawsoniana var. juniperina; 9, C. L. var. Fraseri; 10, C. L. var. aurea; 11, C. L. var. erecta viridis.

Communications Received.—G. H. (Thanks for 2/6 for R.G.O.F. Box)—G. B.—A. A.—E. S.—M. P. J.—J. C.—F. C. P.—W. B. & S.—A. S.—S. M. B.—R. H. J. W. M.—A. G.—T. P. McI.

REPLY.

I do not think your correspondent *T. C.* need be afraid of rabbits eating his Ericas planted in woodland. I have planted some thousands of all kinds of Heaths during the past few years in a wood in which rabbits are numerous. In exceptionally hard winters they might do a little damage to the young shoots, but I have never had occasion to protect any of the Heaths from rabbits, although I have had to do so in the case of young Scots Firs growing in the same wood—even this winter, but not to a great extent—but only while frost was prevalent recently. *Ernest Seaplehorn.*

GARDENING APPOINTMENT.

Mr. Henry Cameron previously at Mertoun Gardens, St. Boswells, as gardener to Major Falconer Stewart, M.C., at Castle Fiddal, Braco, Perthshire. (Thanks for 2/6 for R.G.O.F. Box. Eds.).

MARKETS.

COVENT GARDEN, Tuesday, February 16th, 1926.

Cut Flowers, etc.: Average Wholesale Prices.

	s. d. s. d.
Adiantum decorum, doz. bun.	12 0-15 0
cuneatum, per doz. bun. ...	10 0-12 0
Anemone fulgens, per doz. bun.	4 0- 5 0
Arums (Richardias) per doz.	6 0- 7 0
Asparagus plumosus, per bun., long trails, 6's,	2 0- 3 0
med. sprays	1 6- 2 6
short	0 9- 1 3
— Sprengeri, bun long sprays...	1 6- 2 0
med. „ ...	1 0- 1 6
short „ ...	0 4- 1 0
Azalea, white, per doz. bun.	5 0 6 0
Bouvardia, white, per doz. bun. ...	15 0-18 0
Camellias, white per box, 12's	2 6- 3 6
Carnations, per doz. blooms	3 0- 4 0
Chrysanthemums white blooms, per doz. ...	4 0- 8 0
—white spray per doz. bun.	30 0-36 0
Croton leaves per doz. ...	1 9- 2 6
Daffodils, Golden Spur, single, per doz. bun.	12 0-15 0
—Emperor, per doz. bun. ...	12 0-15 0
— Henry Irving, per doz. bun.	6 0- 7 0
— King Alfred, per doz. bun.	24 0-30 0
— Sir Watkin, per doz. bun.	12 0-15 0
—Victoria, per doz. bun. ...	12 0-15 0
— princeps, per doz. bun. ...	9 0-10 0
Fern, French, per doz. bun.	10 0-12 0
Forget-me-not, per doz. bun.	9 0—12 0
Freesia, white, per doz. bun.	2 6 4 6
French Flowers—	
—Acacia (Mimosa) per doz. bun.	15 0-18 0
— Anemone, De Caen, per doz. bun.	9 0-10 0
— Eucalyptus per pad ...	4 0—5 0
— Marguerites, yellow, per doz. bun. ...	4 0—4 6
— Narcissus, Paper White, per doz. bun.	2 0—3 0
—Narcissus Soliel d'Or, per doz. bun.	3 0 -4 0

	s. d. s. d.
French Flowers—	
—Parma Violets, per bun. ...	2 6—3 0
—Ranunculus, scarlet, per doz. bun. ...	6 0—7 0
—carmine, per doz. bun. ...	7 0—8 0
—orange, per doz. bun. ...	24 0-30 0
Heather, white, per doz. bun.	10 0-12 0
pink, per doz. bun.	9 0-12 0
Hyacinths, large white, per doz. spikes ...	3 0—4 0
Iris tingitana, per doz. blooms	4 0—5 0
Lilac, white, per doz. sprays...	6 0—8 0
Lilium longiflorum long, per doz.	7 0—8 0
—speciosum album, long, per doz. ...	— —
—short, per doz.	3 6—4 6
—speciosum rubrum, long, per doz. blooms ...	3 6—4 0
—short, doz. blooms ...	2 6—3 6
Lily-of-the-Valley, per doz. bun.	18 0-24 0
Narcissus Grand Primo, per doz. bun.... ...	5 0—6 0
—Narcissus ornatus, per doz. bun.... ...	7 0—8 0
Orchids, per doz.	
—Cattleyas ...	24 0-30 0
—Cypripediums	5 0—7 0
Prunus triloba, per doz. bun.	2 6 -3 6
Roses, per doz. blooms—	
—Richmond ...	9 0-15 0
— Madame Butterfly	15 0-18 0
Smilax, per doz. trails	2 6—3 0
Snowdrops, per doz. bun. ...	1 6—3 0
Stock, double white, per doz. bun.	4 0—5 0
Tulips, single—	
—white	18 0-24 0
—yellow ...	24 0-30 0
—scarlet ...	24 0-30 0
—pink	24 0-30 0
—terra cotta ...	18 0-24 0
—W. Copland, per doz. bun. ...	24 0-36 0
Tulips, double—	
—Couronne d'or, per doz. bun.	27 0-30 0
—Murillo, per doz. bun. ...	21 0-24 0
Violets	2 0—4 0

Remarks.—Best Daffodils still remain firm in price. King Alfred is exceptionally fine in quality. Sir Watkin, Victoria and Emperor are more plentiful, but Golden Spur is somewhat shorter in supply. The finest blooms are from the Hampton district. Larger consignments of the cheaper grades of Daffodils are being received from Cornwall and the Channel Islands; these are Henry Irving, Golden Spur, princeps and King Alfred. Large supplies of yellow Narcissus Soliel d'Or, Gloriosa, Grand Primo are also arriving from Guernsey and Scilly. The quantities of Tulips have been somewhat shorter during the past week, especially of coloured varieties. Darwin Tulips are increasing in quantity, and their prices are on the down grade. Narcissus ornatus is now coming from several districts, and prices are easier for all grades. Amongst Liliums, small consignments of L. longiflorum, var. formosum are on sale, these being very fine in quailty. The variety giganteum appears to be shortening, and prices were a trifle firmer to-day. The only Roses still available from home growers are Madame Butterfly, Columbia and Richmond. A few small blooms of Sunburst have been received from Holland during the past week. English Violets, Freesias and Snowdrops are arriving in large quantities. Forget-me-nots are good in quality. A few Wallflowers marketed are of very medium quality. Small consignments of Chrysanthemum Cheshunt White, are still arriving in good condition and meet with a good demand. Larger consignments of flowers are now arriving from the south of France; with the exception of Paper White Narcissus, prices are on the down grade, and they fluctuate according to the quality on arrival. Anemones, Ranunculus and Parma Violets are much improved in quality. Some well-grown Freesias are arriving in good condition and they are meeting with a good demand; the stalks are long and the spikes useful for decorative purposes.

GLASGOW.

The tone of the cut flower market was somewhat irregular in the past week, with an easier tendency of prices which reached their lowest level on Tuesday. A moderate recovery, however, took place on Friday, but it did not extend to all sections of the market. Mimosa was very plentiful, and part of the daily consignments from London was unsaleable at 2/6 to 4/- per chip. Lilium longiflorum (Harrissii) declined to 6/-, and Arums (Richardias) to 5/-. Lily-of-the-Valley to 1/- per bunch, while Narcissi were only worth from 1/6 to 2/3 per dozen bunches. Carnations ranged between 3/- and 5/- per dozen, and. Hyacinths sold from 8d. to 1/- for 3's. Although Tulips were in shorter supply, values generally moved in a downward direction, which is reflected in the following quotations: Bartigon, 1/3 to 2/-; William Pitt, 1/3 to 1/9; Farncombe Sanders, 1/3 to 1/7; Le Notre, 1/3 to 1/6; W. Copland, 1/- to 1/3; Ibis, 1/- to 1/2; Couronne d'Or, Flamingo, Tea Rose and Prince of Austria, 10d. to 1/1; Brilliant, 9d. to 1/-; Murillo and La Reine, 8d. to 10d. Prices of Daffodils also dropped, King Alfred making 2/- to 2/4 per dozen; Golden Spur, 1/- to 1/2; princeps, and Sir Watkin, 11d. to 1/-; and ornatus, 5d. to 7d. per bunch.

There is not much of importance to report in the fruit market, business being moderate in dimensions and values steady. Jaffa Oranges advanced to 22/-, and first arrivals of Californian Navel Oranges averaged 35/-. Valencia Oranges and American Apples showed no movement one way or the other. Naples Lemons, 300's, sold at 15/- to 18/-, and Palermo at 12/6 to 15/-, while Palermo Bitter Oranges returned 8/- for 200's. South African Peaches fluctuated between 5/6 and 7/6; Pears, 4/6 to 6/6, and Plums, 5/6 to 9/-. Pines were worth 5/- to 5/6 each. Prices for Gros Colmar Grapes remained steady, English at 3/- to 3/6; Scotch at 2/6 to 3/6, and Dutch at 1/8 to 2/6.

In the vegetable department, Cucumbers sold at 1/- to 1/6 each. Teneriffe Tomatos, 30/- to 38/-; Dutch Carrots, 7/- per cwt.; Syboes, 7/- to 8/- per dozen bunches; Lettuces, 1/6 to 1/9, out-door, 3/6 to 4/-; Seakale, 1/8 to 2/-; Asparagus (sprue), 1/- to 1/3; Chicory, 4d.; Endive, 3/- to 4/- per dozen; and Rhubarb, 28/- to 32/- per cwt.

TRADE NOTE.

With reference to the recent activities concerning foreign Apples which have been rendered more or less poisonous by the use of a spray containing arsenic, it may be of interest to note that a considerable amount of business has been placed with Lloyds' Underwriters by various fruit importers. The insurance effected is intended to cover all losses to the assured (and his customers, in respect of Apples supplied by him) in respect of all claims made against him in connection with the sale of American and Canadian Apples, including any litigation, legal damages or prosecutions by local or government authorities, and also indemnifying him against any loss on account of Apples condemned by the authorities. The insurance also covers third party risks, that is to say, claims by persons who have been poisoned by eating Apples supplied by the assured. Premiums are based on the approximate turnover for the last year, and are charged "in full" and not as a percentage. There do not appear to be any general rates at present in force, the rate varying with each individual case. On account of the number of enquiries received, and the fact that only certain underwriters are accepting this business, the rates are hardening daily, and a general rise is expected shortly.

CATALOGUES RECEIVED.

Hurst and Son, 152, Houndsditch, E.1.—Gladioli, etc.; Bamboo Canes, etc. (Wholesale).

T. Smith, Daisy Hill Nursery, Newry.—Seeds of hardy plants.

Clibrans, Ltd., Altrincham.—Indoor and bedding plants; trees and shrubs, etc.; Cyclamen.

John Forbes (Hawick), Ltd., Buccleuch Nurseries, Hawick.—Florists' flowers, hardy plants, seeds, etc.

SCHEDULES RECEIVED.

Taunton Deane Horticultural and Floricultural Society.—Fifty-fourth annual show, to be held in The Park, Taunton, on Wednesday and Thurdsay, August 11 and 12.—Secretary, Mr. F. J. J. Stacey, 3, Hammet Street, Taunton.

Reigate, Redhill and District Gardeners' Mutual Improvement Association.—Floral Fete to be held at Batts Hill House, Redhill, on Wednesday, July 7. Secretary, Mr. W. Rose, Hillside, Linkfield Street, Redhill.

The Bermondsey and Rotherhithe Horticultural Society—Spring Flower Show to be held in the Princess Club, Jamaica Road, London, S.E. 16, on Thursday, April 15, at 7.30 p.m.—Secretary, Mr. L. D. Corder, 42, Upper Grange Road, Bermondsey.

Leeds and District Market Gardeners' Association.—Thirteenth Annual Rhubarb Show, Dinner and Smoking Concert to be held at the Griffin Hotel, Leeds, on Saturday, February, 27, 1926.—Hon. Secretary, Mr. S. H. Ramsden, Branlcar, near Wakefield.

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THE
Gardeners' Chronicle
No. 2044.—*SATURDAY, FEBRUARY* 27, 1926.

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AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 40·7.

ACTUAL TEMPERATURE—
The Gardeners' Chronicle Office 5, Tavistock Street, Covent Garden, London, Wednesday, February 24, 10 a.m. Bar. 30·35 Temp. 54°. Weather, Bright.

Arsenical Sprays and Weed-Killers.

THE question whether the use of arsenical preparations for spraying fruit trees or killing weeds is apt to be attended by results harmful to the life of animals has often been discussed. During the past year it has again been brought into prominence by the discovery of arsenic in not inconsiderable traces on imported Apples. The most recent investigations on the use of arsenic in horticulture and agriculture are those made by Mr. Alexander McCutcheon who gave an account of his observations at a recent meeting of the Pharmaceutical Society of Great Britain*. Mr. McCutcheon, who has made an extensive series of experiments in the use of weed-killers and on the poisonous effects of arsenic on plants, appears to incline to the view that weed-killers containing arsenic have little if any superiority over those which do not. He finds that dry sodium carbonate in a 1—2% solution, or a 5—10% solution of washing soda, suffice to destroy most weeds and he adds the useful comment that if the solution be made up with soapy water its efficacy is increased. We could wish that our own experience confirmed Mr. McCutcheon's conclusions; but although there may be non-arsenical weed-killers as efficacious as those which contain arsenic, it has not been our good fortune as yet to discover them. There can, however, be no doubt that every effort should be made to dispense with arsenical weed-killers, for although the danger which attaches to their use is, as we think, overrated, the existence of the danger cannot, in view of the evidence brought forward in the discussion which followed the reading of Mr. McCutcheon's paper, be denied. For our part we are inclined to believe that if precautions are taken to keep animals, poultry and the like, away from the sprayed area for a short time during the spraying and the drying of the spray, no evil results are likely to follow. Mr. McCutcheon thinks that arsenic to be effective must touch the foliage; but although this may be true there is the curious and well ascertained fact that an arsenical weed-killer is apt to act slowly. The amount of weed destruction that is to be observed immediately after the application of an arsenical weed-killer is small; but in the course of a few days, provided that the weather be dry, the whole area is brown with the dead plants. The cause of this progressive action of the poison is not clear, but probably resides in the fact that traces of arsenic, too small to be detected by analytical means, are actually absorbed by the plant and prove fatal to it. Nevertheless, it is to be hoped that further systematic experiments will be made in the use of non-arsenical weed-killers and we would suggest that the Royal Horticultural Society should institute a series of trials with a view to determining which are the best and safest weed-killers. Sodium chlorate and ammonium chlorate have been used apparently with success, the former on paths, the latter on arable land, and gardeners would be glad to know if by using these substances they could keep their paths clean without undue expense. With respect to the use of arsenical sprays for fruit trees, few gardeners would be prepared to forego the annual application of lead arsenate—in combination with lime sulphur—which enables them to grow clean fruit. Nor do we think that the risks attendant on the use of this spray, if made at the proper time, are other than negligible. If deferred until the Apple blossom is opening the spraying is likely to have fatal effects on bees; but if done early, before the blossom buds have burst, there would appear to be no danger at all. In America there is a tendency to develop spraying into an elaborate ritual and advice is sometimes given to spray several times. The conjecture may therefore be hazarded that the occurrence of arsenic on the imported fruits was due to late spraying. In this country few gardeners or fruit growers can afford to give their trees more than two sprayings; a winter wash and the lead-arsenate spring cleaning. Nor, in our experience, is more than this necessary; indeed, if the winter spraying with carbolinium compounds, now being so generally tried, proves successful, it may be possible to keep our orchards clean with one annual spraying only. Or if that proves impossible it may be found that the spring spraying must be diverted rather to the control of fungous than to that of insect pests, and lime sulphur, undoubtedly beneficial and harmless, may come to be used together with nicotine, for the spring-time spraying. Everyone would like to dispense with such highly poisonous substances as arsenic. It may be possible to achieve this aspiration by using equally efficacious non-arsenical weed-killers and spray fluids, but at the present time it cannot be stated with confidence that the non-arsenical sprays can do all that those containing arsenic are known to do. Alkaloids — as for example those derived from Derris elliptica—may prove ultimately to be the means of absolving us from the use of arsenical sprays. Preparations of this kind are, we believe, already on the market and appear to give excellent results. We, as gardeners, await authoritative guidance based on comparative tests and are prepared to follow the former if the results of the latter are convincing.

The Hooker Lecture.—Dr. A. B. Rendle announced at the meeting of the Linnean Society on February 18, that the next Hooker Lecture would be delivered by Professor Carl Schröter, F.M.L.S., of Zurich, on April 15 next, entitled, "The Swiss National Park and Scientific Researches into its Nature."

The Lindley Library.—Very considerable additions have been made to the Lindley Library during the past few years; in 1925, no fewer than 451 works, presented, purchased or sent to the Royal Horticultural Society for review, have been added to the collection. The sale of the late Mr. C. Harman Payne's library enabled the Society to acquire many rare books and pamphlets, especially on florists' flowers. Mr. Harman Payne was greatly interested in the Chrysanthemum, and a considerable number of his books were on this flower. The Society also acquired a few of his books dealing with floricultural history, including *Le Floriste Francois*, which is stated to be the earliest monograph of the Tulip, and one of the earliest of all floricultural monographs; it was published at Caen in 1654. Mr. E. A. Bunyard, in the *Journal of the Royal Horticultural Society*, vol. LI, part 1, states that a new catalogue of the Lindley Library is in preparation, and this will be looked forward to with interest by all lovers of gardens, and especially students of horticulture. Mr. Bunyard appeals for gifts of old nurserymen's catalogues in which the historian of horticulture, he states, finds "original sources" of the greatest value

The Civil Service Sports Ground. — Last Saturday the Duke of York, in his capacity of President of the Civil Service Sports Council inaugurated, what is claimed to be the finest and largest sports ground in the country. There was no formal opening, but His Majesty the King was present and was attended by several Cabinet Ministers and many other prominent persons. The weather was ideal for an outdoor function and the event attracted a large concourse of spectators. A short fifteen months ago the thirty acres which now comprise this first-rate sports ground along the river bank at Duke's Meadows, Chiswick, were fruit orchards and derelict land. Before the work proper could be commenced it was necessary to demolish an ancient roadway and culverts and drain a sewage swamp, as well as grub up the many fruit trees. This new sports ground has a spacious two-storied pavilion which provides ample dressing rooms for three hundred players and is fully equipped with plunge and shower baths. There is also a dance hall, club room and tea lounge. There are six "cricket squares," one Rugby and four Association football grounds, four hockey grounds, a bowling green, twenty-six grass and ten hard courts for tennis, a net-ball pitch and a running track. Already £30,000 is stated to have been spent, and this money was provided entirely by subscriptions from within the Civil Service.

International Botanical Conference, 1930.—A meeting will be held in the rooms of the Linnean Society on Wednesday, the 10th March, at 3.30 p.m., to consider a suggestion that the Fifth International Botanical Congress should be held in London in 1930, and, in the event of the suggestion being adopted, to formulate an invitation to be submitted to the ensuing Fourth International Botanical Congress at Ithaca, U.S.A. in August next.

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* Arsenic with Special Reference to its use in Horticulture and Agriculture. *The Pharmaceutical Journal.* No. 2250, Vol. 116. January 30, 1926.

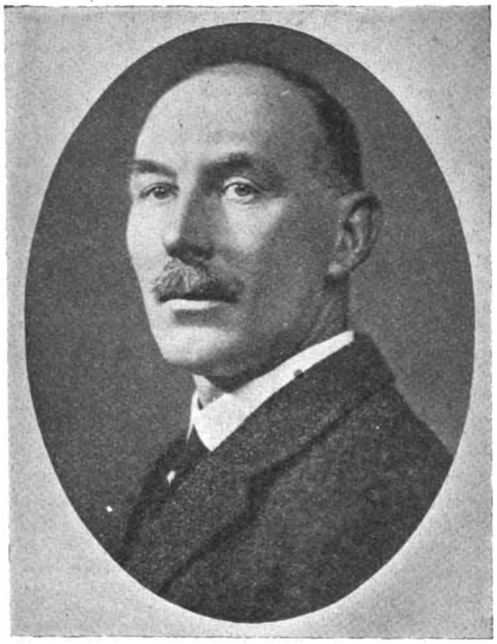
Brussels Trees Threatened.—Dwellers in the beautiful city of Brussels are disturbed at the prospect of losing the fine Plane trees which are at present gracing the Place Loix. It appears that owing to complaints from some of the residents, the municipality is proposing to cut down the trees, but it is to be hoped that such drastic action will not be taken unless it is really necessary.

Trial of Gladioli of the Primulinus section at Wisley, 1926.—The Royal Horticultural Society will carry out a trial of Gladioli of the Primulinus section at Wisley during the coming season. Ten (or five) corms of each variety for trial should be sent addressed to The Director, R.H.S. Gardens, Wisley, Ripley, Surrey, to reach him by March 31.

Horticultural Sale at Wembley.—Messrs. Protheroe and Morris, in conjunction with Messrs. Knight, Frank and Rutley, recently conducted a four days sale of the whole of the ornamental trees, shrubs, plants, garden utensils, and garden sundries at the British Empire Exhibition grounds, Wembley. There was a large attendance each day of both private and trade buyers. Competition was keen and the whole of the lots offered were readily disposed of at prices which may be considered satisfactory. Rhododendrons two feet to three feet high realised from 6s. to 8s. each, and specimens from 30s. to £8 8s. each. English Yews, planted as hedges round the North Garden, realized from 5s. to 6s. 6d. each. A specimen Japanese Maple sold for 9½ guineas. The Delphiniums and the other herbaceous plants found ready buyers. A span-roof greenhouse, fifty feet long, realized £60, and the rectangular York paving stone round the flagstaff realised £75, while the walling stone was keenly sought after.

R.H.S. Scholarships for Young Gardeners.—Two horticultural scholarships have hitherto been available for award on the results of the Royal Horticultural Society's General Examination in horticulture. The older of these was known as the Major Scholarship, and the other as the Knott Scholarship, the latter being awarded out of funds provided by Sir James Knott, Bart., a vice-president of the Royal Horticultural Society. Both were open to men only and were tenable for two years. There were minor differences in the conditions of holding them. This year, and in the future, the scholarships will be offered for award on the results of a special examination designed to test so far as possible the candidate's ability to profit by a course of instruction in technical horticulture. This examination, which will be held in April, will not deal particularly with technical horticulture but with the subjects ordinarily taught in schools. The examination will be open to young men who are not less than eighteen nor more than twenty-two years of age on September 30 in the year of the examination. Candidates must be able to produce certificates of good character, and must be of good health and physique, free from any physical defect that would militate against a career as a gardener, and willing to subject themselves to the rules for students at Wisley. The value of the Major Scholarship is £50 for annum, and that of the Knott Scholarshp, £30 per annum. Both are tenable at the Royal Horticultural Society's Gardens, Wisley, for a period of two years, commencing at the beginning of October in the year of the examination. In certain cases the second year may, with the consent of the Council, be taken elsewhere than at Wisley, but each request for this special treatment will be considered on its merits. In 1926 the examination will take place from 6 p.m. to 9 p.m., on Wednesday, April 21. It will be held in as many different places in the British Isles as circumstances may demand, provided that a magistrate, clergyman, schoolmaster, or other responsible person accustomed to examinations has signified, by signing the candidate's entry form, his willingness to act as supervisor. Any candidate who wishes to do so may take the examination at the Society's Offices, Vincent Square, S.W.1., where arrangements for supervision will be made by the Society. Candidates must enter their names on or before March 31, 1926, with the Secretary, Royal Horticultural Society, Vincent Square, London, S.W.1., from whom entry forms may be obtained. An entry fee of 5/- must be sent with the completed form.

Mr. C. A. Bayford.—Like many another successful gardener, Mr. C. A. Bayford gained his early knowledge of gardening from his father, who was then gardener at High Elms (now renamed Garnton Manor), Hertfordshire. He remained with his father for three years and then passed on to the gardens at Moat Mount, Hendon; a year later he entered the famous gardens at Moor Park, Rickmansworth, where he was employed for two years. At that period every ambitious young gardener felt that a period spent at Chelsea was a necessary part of his career, so Mr. Bayford obtained employment with Messrs. James Veitch and Sons, and spent short periods in most of the departments of their extensive establishment, finishing in the decorative department. His skill in the arrangement of plants and flowers secured him the position of decorator at Floors Castle, Kelso, at a time when Mr. A. MacKeller was gardener there. From Floors, Mr. Bayford went to Madresfield Court as general foreman under Mr. W. Crump, and five years' experience under that very capable cultivator and organiser fitted him for the responsible position of gardener to C. Lee Campbell, Esq., at Glewston Court, Ross, where he had charge of the fruit plantations as well as the gardens and grounds. Mr. Bayford was a successful exhibitor, especially of hardy fruits, while at Glewston, but his stay there extended only to two years as the estate was sold. His next appointment was as gardener to the Earl of Lichfield, at Shugborough Hall, Stafford, whom he served for eight years before taking up his present position as gardener to C. W. Dyson Perrins, Esq., at Davenham, Great Malvern, Worcestershire. During the past score of years Mr. Bayford has carried out many alterations and improvements at Davenham, including the construction of a new Rose garden and rock garden, and the planting of a fine collection of early-flowering trees and shrubs. The beauty and upkeep of the gardens at Davenham are well-known in the Worcester district, and once a year C. W. Dyson Perrins, Esq., throws them open to the public on behalf of the Gardeners' Royal Benevolent Institution, for which, through the Worcester Auxillary, Mr. C. A. Bayford works continuously and successfully. This chartiy usually benefits to the extent of £30 a year from the opening to the public of Davenham Gardens.



MR. C. A. BAYFORD.

Resignation of Belgian Colonial Secretary.—The resignation is announced in the Belgian horticultural press of M. N. Arnold, Secretary-General of the Belgian Colonial Ministry. M. Arnold, who has just completed forty-two years of uninterrupted official duties, was mainly instrumental in the creation of the Botanic Garden of Eala, and the Colonial Garden at Laeken. He also sent out many botanical missions, consisting of the most eminent botanists, to the Belgian Congo, and it was under his auspices that the famous *Annals of Tervueren*, descriptive of the Congolese flora, was compiled by MM. Durand and De Wildeman.

Exports of Plants to Canada.—The Insect and Pests Advisory Board of the Canadian Department of Agriculture has had its attention drawn to the fact that the Canadian Customs Department, when checking permits against invoices of plants for clearance, often find that permits and invoices do not coincide, in that varieties appear on the invoice not included in the permit, or the numbers of plants on the invoice materially exceed those given on the permit. In such cases the Customs officers have no option but to refuse clearance. If an importer increases his order after the permit has been issued, he should return the permit for amendment. If the shipper increases the order without the knowledge of the importer, the latter may have his permit amended by telegraph, but in such cases will have to bear the telegraph charges. Shipments are not permitted to leave the port of importation unless a permit has been issued to cover their clearance, and containers should be marked with the correct permit number by the shipper, to assist checking and avoid delay. It has been reported that shippers have frequently used the same permit number for more than one shipment to the same individual, after the quantities authorised by that permit have been filled. This is contrary to the regulations. As from January 1, 1926, permits will be granted as valid for only one year from date of issue. In cases where a shipment is to be forwarded in two separate lots at different times, the importer is advised to secure a separate permit for each lot, in order to avoid confusion and delay. If, for any reason, only one permit has been secured, on arrival of the first portion of the shipment, the importer should present the permit to the customs authorities, who will check off the plants received and return the permit to the importer, indicating thereon the entry number under which the first portion of the shipment was released. Upon arrival of the balance of the shipment the importer will again present the permit when it will be taken up by the Customs Department to be filed with their entry papers.

Cyclamen at Hesketh Park, Southport.—Southport, the Garden City by the Sea, as it is often called, has long been famed for its magnificent display of flowers during summer and autumn. Good judges—men who have travelled—have stated that Southport has the finest public gardens in Europe; be this as it may, everyone who knows this beautiful seaside resort will admit that the floral display would be difficult to equal in its variety and extent. A remarkably comprehensive collection of Dahlias is grown, including about 20,000 of the brilliant Coltness Gem, the most striking and popular bedding plant of to-day. Herbaceous flowers in great variety, mostly planted in bold masses of one kind, Antirrhinums, Gladioli, Geraniums, and many other beautiful summer subjects, combine to make a display that impresses by its beauty residents and visitors alike. Not only during the summer, but also in the winter the cult of the beautiful is not neglected. For many weeks past, in one of the large glasshouses in Hesketh Park, Cyclamen have made a magnificent display (Fig. 70). Upwards of two thousand plants are grown, embracing pure white, white with rose base, scarlet, salmon, crimson, and some beautiful Petunia coloured flowers. The plants are in five-and-a-half-inch pots and six-inch pots, splendidly grown, with healthy foliage and an abundance of flowers. Seeds were sown in August, 1924, and the plants have been in bloom since last

October; at the present time, mid-February, the display is wonderful, and reflects great credit on Mr. Clark, the superintendent of parks. The seeds were supplied by Messrs. Clibrans, Ltd., of Altrincham. Whether for public or private gardens, there is probably no plant that so well repays cultivation as does the greenhouse Cyclamen for a display of flowers from October to March. Seedsmen have worked wonders with this family, new and beautiful colours have been introduced, the size of flower has been increased, and there is greater freedom of flowering and of vigour than formerly. Not only for a display but also for supplying cut blooms Cyclamens are of great value, and it is satisfactory to know that their cultivation is becoming better understood and, consequently, more widespread.

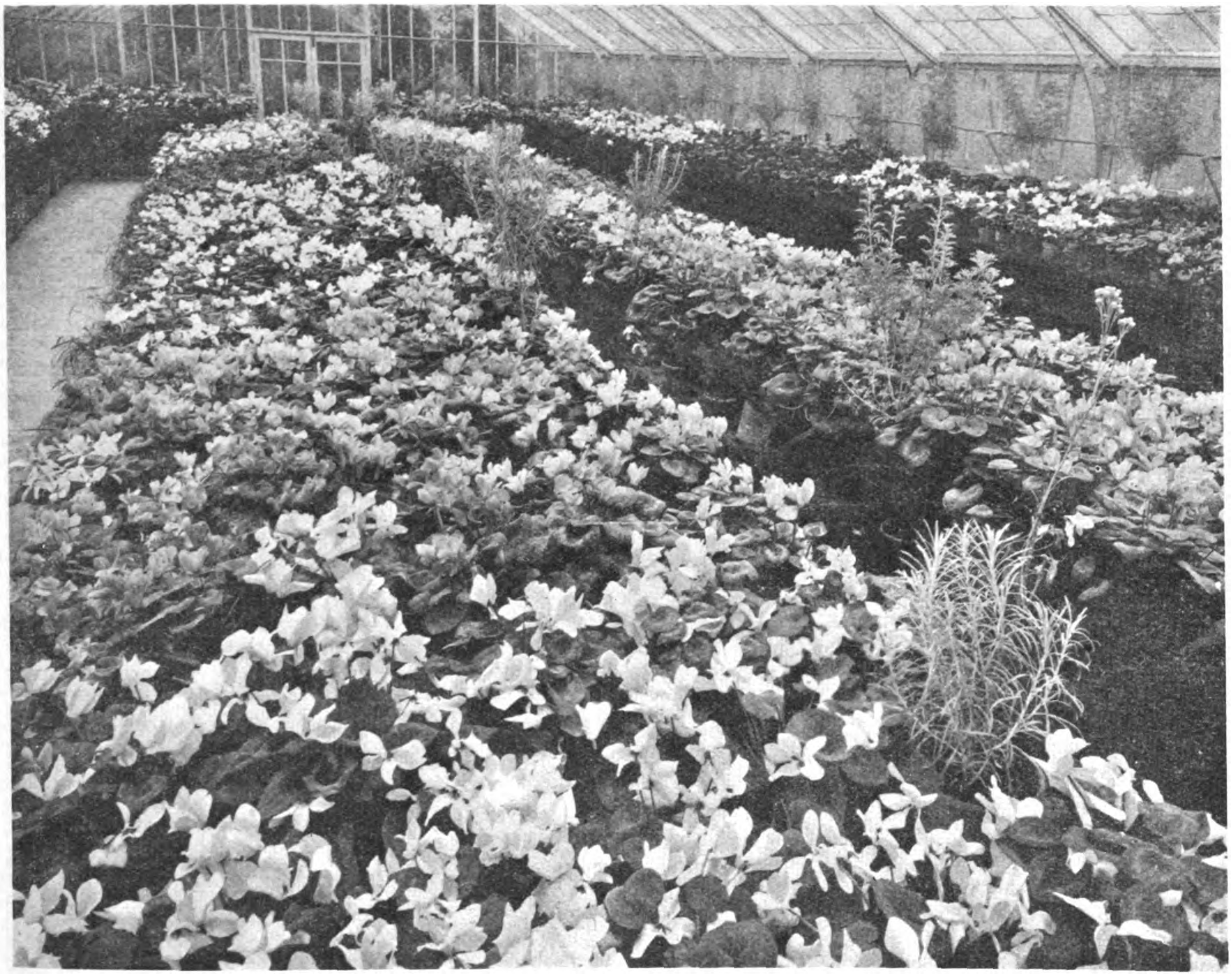

[Photo. by Kay and Foley.

FIG. 70.—DISPLAY OF CYCLAMENS IN THE CONSERVATORY, HESKETH PARK, SOUTHPORT.

National Sweet Pea Society.—In the Schedule of Prizes offered for competition by the National Sweet Pea Society at its 1926 exhibition, no fewer than sixty-one classes have been provided. The exhibition is to be held in the Montpellier Gardens, Cheltenham, in conjunction with the Cheltenham Floral Fête, on June 30 and July 1. Nine of the classes are open only to growers residing within twenty-five miles of Cheltenham; the other classes are open only to members of the N.S.P.S. In addition to cash prizes, numerous cups, trophies and pieces of plate are offered, two of the finest being the Eastbourne Cup and City of Bath Cup, each open only to competition by the trade. The Society's artistic medal is also part of the prize in many of the classes. The Schedule extends to thirty-two pages, and in addition to the rules and regulations for the show, contains the rules of the Society, the Classification Lists, and the lists of Too-much-alike varieties. The schedule may be obtained from the Secretary, Mr. A. C. Bartlett, 19, Bedford Chambers, Covent Garden, W.C.2.

Appointments for the Ensuing Week.—Monday, March 1: Romsey and District Gardeners' Association's meeting. Tuesday, March 2: Royal Caledonian Horticultural Society's meeting; Wednesday, March 3: Abingdon Horticultural Society's meeting: Pangbourne Gardeners' Mutual Improvement Associations' meeting and lecture. Thursday, March 4: Western Commercial Horticultural Society's exhibition at Penzance (two days); Manchester and North of England Orchid Society's meeting; Friday, March 5: Dundee Horticultural Society's lecture; Accrington and District Gardeners' Society's meeting.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Portugal Laurels at Trentham.*—The enquiry of a correspondent, signing himself "Pod," respecting some standard Portugal Laurels in the gardens at Trentham, has reminded us of promises made to other inquirers on the same subject; and, in order to convey a clearer idea of the appearance of these trees, we herewith give a sketch of one of them which is eight feet high, with a straight stem three-and-a-half feet in height, carrying a head eight feet in diameter. In the Italian flower garden at Trentham Hall there are sixty-eight such trees, than which nothing can be more appropriate or more admired; and the centre walk, which is forty feet wide and has seventeen standards arranged at regular distances on either side of it, is said to be the finest thing of the kind in the kingdom. The time and attention required to bring these trees to perfection accounts for our correspondent being unable to procure them ready formed from the nurseries. We are aware that some of the nurserymen are endeavouring to obtain them: but, when we state that at least six years are requisite in preparing them for placing in their permanent situations, it will be seen that there is much need for the exercise of patience. The trees at Trentham when first bought (about thirteen years ago) had their stems formed, but they had very small heads. They were then about ten years old; but we believe that, by selecting Portugal Laurels already large bushes, and by judicious management, standards may be obtained fit for placing in their tubs in five or six years. We would therefore advise those who wish to possess standard Portugal Laurels to form them for themselves; and to commence a search forthwith among plantations of trees from eight to ten feet high, selecting those with the cleanest and straightest stems, upon which the beauty of the standards considerably depends. Portugal Laurels which have been drawn up when young, from having been planted thickly together or among faster-growing trees, are very commonly found with clean stems three feet or even four feet in height; but, when allowed plenty of room, they seldom grow with straight stems, but generally begin to branch out close to the ground. *Gard. Chron., March 1, 1851.*

The Week's Work.

THE ORCHID HOUSES.

By J. COLLIER, Gardener to Sir JEREMIAH COLMAN, Bart., Gatton Park, Reigate.

Phalaenopsis.—These useful winter-flowering Orchids have been blooming for some time past. The flower scapes should not be allowed to remain on the plants for a very long period or they will have a weakening effect on the latter. After they have been cut off the plants should be given a few weeks rest, affording them only sufficient moisture at the roots to maintain the leaves in a plump, healthy condition. The Spagnum-moss on the surface of the receptacle should be allowed to become quite dry between each application of water, which should be given by means of a small rose can. Owing to the succulent nature of their leaves and absence of pseudo-bulbs, these Orchids are amongst the most difficult to manage during the winter. They should be grown in a warm, buoyant atmosphere at all times, and not exposed to bright sunshine.

Vanda and Saccolabium.—Towards the end of the present month such warmth-loving Orchids as Vanda aërides and Saccolabium should be given attention. Many of these plants will be showing signs of fresh root action. The old, decayed Sphagnum-moss should be removed from between the roots and fresh moss substituted. Specimens that have lost many of their lower leaves and have new roots developing from the stem should be re-potted. Cut them back at the base to within a few inches of the living roots, then place the plant in the pot so that the foliage is near to the soil. It will probably be necessary to place the stem in the receptacle before the drainage material. Fill the pot or pan one half its depth with clean potsherds. Employ clean, picked Sphagnum moss as a rooting-medium, mixing portions of broken pots amongst it to assist the water to pass through freely. Fill the receptacles to their rims and arrange the materials higher in the middle than at the sides. Finish with a layer of heads of living Sphagnum-moss over the surface. Clear the plants from scale insects which infest the stems and axils of the leaves.

Angraecum.—Angraecum is a closely allied genera to those already mentioned. The strong-growing kinds, which include A. sesquipedale, A. eburneum and A. Eichlerianum may be grown in pots and treated similarly to Vandas. The smaller-growing species, of which the sweet little A. citratum is an example, succeed best in shallow Orchid pans.

FRUITS UNDER GLASS.

By T. PATEMAN, Gardener to SIR CHARLES NALL-CAIN, Brocket Hall, Hertfordshire.

Cherries in Pots.—Those who wish to have ripe Cherries in May and early June must exercise a little patience when starting the trees into growth and be sparing with the use of fire-heat, which should only be afforded in the early stages of growth, when the external temperature is below 35°, to maintain a mean temperature of 42°. Full use should be made of solar heat which is most favourable for steady forcing. Cherries are impatient of fire-heat, and many failures may be traced to this error in cultivation, for a hot, dry atmosphere is inimical to success. So soon as it is noticed that the buds are swelling, the mean temperature should range from 45° to 50°, with a rise of 10° during the day, but it should be understood that the mean temperature is only given as a guide. On mild nights it may exceed 50° by several degrees without causing harm. As the days lengthen more air may be admitted through the top ventilators, and ventilation is essential when artificial heat is needed. A careful watch should be kept for insect pests, such as green and black Aphides, during the time the trees are in bloom. It will be wise to spray the trees with a nicotine wash, for no matter how carefully the trees were cleansed when they were dormant, aphides are sure to become a source of trouble unless these precautions are taken. When the trees are in bloom it will be wise to shade the flowers from bright sunshine; these precautions taken, a good set of fruits should be ensured.

Cherries in Borders.—Trees planted in borders and growing in a cold house should be retarded in growth for so long as possible, by keeping the ventilators open night and day until such time that it is found necessary to close them at night to protect the flowers from frost. In the meantime see that the borders are supplied with sufficient moisture; but at this season of the year do not water the border so liberally as to cause stagnation. Spray the trees with nicotine wash when it is found that the buds are nearing the opening stage, as recommended for pot Cherries.

Winter Tomatos.—Although the winter has been cold and sunless Tomatos have done exceptionally well here. Our plants are grown in ten-inch pots in a temperature not exceeding 60°. They have been lightly fed with liquid manure and frequent dressings of sweet rich soil have been applied to assist the plants to swell their fruits. To provide a succession, young plants raised from seeds sown last month should be kept growing in a moderate heat, and potted on until they are finally potted in ten-inch receptacles which should only be partially filled with soil to allow room for several top-dressings of rich soil, when two or three trusses of flowers have set.

PLANTS UNDER GLASS.

By JOHN COUTTS, Assistant Curator, Royal Botanic Gardens, Kew.

Lathyrus pubescens.—This plant has lavender-blue, sweet-scented flowers, and is an excellent subject for the cool greenhouse. It succeeds best planted out on a raised bed and the shoots trained to wires under the roof-glass. In its season it is an excellent plant for furnishing a supply of cut flowers. It is hardy in the south and west, trained up a warm wall. Plants may be raised from seeds sown at this time in a warm greenhouse, but flowers are not produced until the second year from seed-sowing. A few plants should be raised each year for succession, as this Lathyrus is not long-lived, and the best results are obtained from young, vigorous stock.

Gloriosa.—The tuberous roots of Gloriosas, which have been stored in dry conditions all the winter, should now be placed in suitable-sized pots, the size of which will vary according to the size of the tubers; as a general rule, ten-inch pots are necessary for large roots. Offsets that may have formed should be carefully removed, taking care not to injure the brittle roots. The stock may also be increased by means of seeds. G. superba is a very old garden plant and the best known species. It succeeds best in a moist atmosphere of 60° to 70°. Use a rich, well-drained compost consisting of loam, fibrous peat and sand. During the growing season the plants should be given suitable support, as they climb by means of tendrils at the ends of the leaves. As the growth ripens, reduce the amount of water at the roots, as it is very important that the tubers should be stored dry, and kept in a warm situation during the winter. Other species are G. simplex (syn. virescens) and its variety Plantii, with reddish yellow flowers; G. Carsonii and G. Rothschildiana, with beautiful crimson flowers. This last is generally afforded stove treatment, and it is not generally known that it succeeds perfectly in an ordinary greenhouse. It is, however, an advantage to start the plant in a warm house and gradually accustom it to cooler conditions.

Alocasia.—As a rule, the many beautiful species of Alocasia require to be re-potted every year, and February or the beginning of March is a suitable time to undertake this work. The compost should consist of good fibrous peat mixed with a little fibrous loam, a liberal quantity of Sphagnum moss, lumps of charcoal and plenty of silver sand; some old soft bricks, broken finely, may, with advantage, take the place of a portion of the sand. The pots or pans should be about two-thirds filled with clean crocks. The plants and compost should be well raised above the rim of the pots, finishing off the surface with Sphagnum-moss, or the short green moss known as bun-moss. Alocasias enjoy a high temperature of 70° to 75° with plenty of atmospheric moisture, and when well-rooted and growing freely should be afforded ample supplies of water at the roots. Shade them from bright sunshine during the spring and summer.

Anthurium.—These foliage plants succeed under the same treatment as Alocasias, but usually it is better to re pot them earlier than Alocasias, and as they are not dried off much greater care is required to preserve the live roots. If they are in good condition it may not be necessary to re-pot them every year, a top-dressing of fresh compost sufficing. When re-potting them, all dead and decaying roots should be trimmed off, while if it is desired to increase the stock, it is best done at this time by division.

THE KITCHEN GARDEN.

By F. STREETER, late Gardener to MAJOR ALBERT PAM, Wormley Bury, Broxbourne.

Exhibition Onions.—Seedling Onions are ready for pricking out into other boxes. Crock a sufficient quantity of sound boxes and fill them with the following compost: three parts good fibrous loam, one-part leaf-mould, one part old Mushroom-bed manure, one six-inch potful of bone-meal per bushel of soil, a dash of soot and sufficient sand to render the mixture porous. Make the soil thoroughly firm in the boxes and prick out the finest and strongest plants. Water them well and place the boxes in a warm house near the roof-glass in a position free from cold draughts.

Autumn-sown Onions.—So soon as the bed can be got into a proper condition for planting, autumn-sown Onions should be planted out. Give the bed a liberal dressing of dry wood-ash and soot, and draw sufficient very shallow drills just for the purpose of marking the rows. Allow a space of twelve inches between the plants in the rows which should be fifteen inches asunder. Select the best seedlings with good roots and plant them very firmly, raking the soil after each row is finished.

Plants in Frames.—Give all vegetables intended for planting out of doors later full air on all possible occasions. Peas, Beans, Cauliflowers and Lettuces growing in boxes should have the lights removed altogether during the daytime if the temperature is above 35°. This hardening is most important, and will greatly help the plants to overcome a check when they are placed in their growing quarters next month.

Seakale.—The thongs having been prepared during wet weather and heeled in outside, should now be placed in boxes of fine soil or sand and stood in a cold house to start sprouting. This will give them several weeks' start over the roots left and planted outside.

Forcing.—Continue to watch the crops of Rhubarb, Seakale, French Beans, Lettuces and Radishes to keep the supply well up to the demand of the establishment. Sow French Beans fortnightly in plenty of moisture and heat, for so soon as one batch is cropping another should be in readiness to take its place. Use the Beans in a young stage. Prepare work in advance as much as possible for the coming month, which is one of the busiest of the year.

THE FLOWER GARDEN.

By F. C. Puddle, Gardener to Lord Aberconway, Bodnant Taly-Cafn, North Wales.

Anchusas and Verbascums.—To maintain vigorous stocks of the several varieties of Anchusa italica and the hybrid Verbascums Caledonia, Ivanhoe, New Departure, etc., it is advisable to propagate a number of plants each year by means of root-cuttings. A few old plants may be lifted and the roots cut into four-inch portions, in the same way that Seakale cuttings are prepared. The root-cuttings should be placed in boxes containing sandy soil until they callus and signs of top-growth are apparent. They may then be planted in nursery beds for the first season.

Montbretias.—The large-flowered varieties of Montbretias such as His Majesty, Pocahontas, Joan of Arc and Queen Alexandra, which have been grown in frames for the winter, have produced a number of stolons, and these form a ready means of increasing the stock. The stolons are sending out roots and are sufficiently large to be separated from the parent corms. If these are taken off and planted three inches apart in frames they will make strong specimens that will flower in late summer, equally as well as the parent corms. The Earlham Hall varieties are not quite so hardy as the older hybrids, and they should not be planted in the open before the middle of April as the young growths are liable to be injured by spring frosts. A well-drained, sunny border should be chosen for their flowering quarters, and they will amply repay the little extra trouble necessary for their successful cultivation. The older varieties, crocosmaeflora, Lord Nelson, Lady Hamilton, etc., should be lifted and divided every alternate year, and the present is a suitable time to carry out this work. Lift the clumps and separate the corms, reducing the number of stolons to three. The corms should then be replanted from four inches to six inches apart in groups. Montbretias are very effective in herbaceous borders, and they are equally useful for brightening the shrubberies in late summer, but perhaps the most charming combination is obtained by planting them in Azalea beds in conjunction with Lilium tigrinum, as the flowers blend beautifully with the autumnal foliage of the Azaleas. If rabbits are troublesome Montbretias should not be planted too sparsely, as these pests will eat off single growths and leave the thicker clumps untouched.

Phacelia campanularia.—This pretty blue-flowered annual (Fig. 71) gives a succession of bloom over a long period; its bell-shaped flowers are a brilliant ultramarine-blue. Seeds should be sown during the next few weeks. This Phacelia makes a good edging plant.

HARDY FRUIT GARDEN.

By W. Auton, Gardener to Viscount Elveden, Pyrford Court, Woking, Surrey.

Planting.—Where large planting schemes are intended or have been in operation during the present season, those responsible for carrying out the work have been more than usually handicapped and much late planting has necessarily been done. Trees and bushes which may have been heeled in awaiting better conditions should be planted in their permanent positions forthwith. Late-planted trees are liable to suffer from dryness during the spring hence they should be watched and watered if necessary, but the greatest safeguard is to well-mulch the roots with partially-decayed manure immediately after planting.

Pruning.—Weather conditions not being quite such a governing factor in pruning as in planting, the bulk of the pruning generally will now be finished, but any still in arrears should be completed so soon as possible. Where the pruning of Gooseberries and Currants has been deferred because of possible losses from birds picking out the buds, the work should now be commenced. Where birds are very troublesome it is sometimes necessary to protect the bushes by netting them entirely, but to make this really effective a skeleton structure should be erected over the whole plot so that the netting may be kept in position well above the bushes. This is not always practicable, and the next best thing is to spray the bushes with something distasteful. For this purpose, I know nothing better than a solution of soft soap with a little Quassia extract mixed with it. Its efficacy does not last any great length of time in showery weather, hence periodical sprayings during the next few weeks might be necessary, but it has the advantage of being perfectly safe to use, whereas sprays of a sticky or tarry nature may prove injurious to the expanding buds.

General Remarks.—The swelling of buds, generally, is proceeding, and if any spraying remains to be done no favourable opportunity should be lost to complete the work, as it is somewhat risky to apply caustic sprays after this date. All well-established borders or quarters of fruit trees which have not been top-dressed this season may receive a mulching of good farm-yard manure, if this is obtainable, otherwise a dressing of good rich loam, with a liberal addition of bone-meal may be applied. This application of rich material is beneficial to all kinds of fruiting bushes and trees at this season, as it affords plant foods which will be assimilated by the roots, thereby imparting vigour to the latter and helping to increase the weight and quality of the fruit. The urine of animals diluted with about five times its volume of water forms an excellent manure for bush fruits and when these quarters are on the old side, it may be applied with particular advantage from now onwards as growth advances. Where Medlars and Quinces are grown see that any necessary thinning of the branches is done so that light and air will reach every part of the tree.

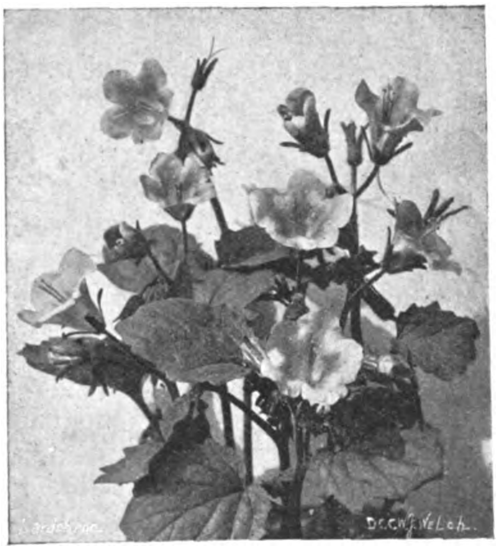


FIG. 71.—PHACELIA CAMPANULARIA.

Wall Trees.—Trees which were planted earlier in the season and were left untied until the natural sinking of the soil had completed should now be pruned and tied in position. In the case of transplanted fruiting trees, these will probably have been summer-pruned, and little pruning will now be necessary beyond removing shoots for which there is insufficient room. Young trees which have not enough growths to form the foundation of the future fruiting tree should be cut back to the points considered necessary to ensure the foundation. Early-flowering Peaches and Nectarines will soon be opening their flowers, and preparation should be made for protecting the trees until fruit has set. Where provision is made for the raising and lowering of thin tiffany blinds this is highly satisfactory, but where no such facilities exist double fish-netting hung at distance of a foot or eighteen inches from the wall has considerable protective power.

FOR NORTHERN GARDENERS.

By A. T. Harrison, Gardener to the Marquis of Ailsa, Culzean Castle, Maybole, Ayrshire.

Protecting Fruit Blossom.—With the first days of March, fruit trees on south walls usually begin to develop rapidly, and some means of protecting the blossoms are necessary. Where movable glass copings are employed, these should be placed in position; if these are not available protection may be afforded by a double thickness of fish netting arranged on poles leaning against the wall, just under the stone coping. This method allows room to walk between the nets and the trees for pollinating the blossoms by means of a rabbit's tail fastened to a cane. It is remarkable how nets used in this manner not only ward off several degrees of frost, but temper or minimise the effects of cold, boisterous March winds.

Peach Houses.—Peaches and Nectarines in cold houses are expanding their flowers, and during cold spells the front ventilators should remain closed to prevent cold draughts passing through the houses. On mild days the ventilators should be opened to their fullest extent to allow bees and other insects to enter. If the weather is not propitious for this, the rabbit's tail already referred to should be employed when the pollen is dry, passing it carefully from flower to flower, and giving each branch a sharp tap to aid in disseminating the pollen. This operation should be performed frequently while the trees are in flower in order to secure a regular set of fruits all over the trees, from which a selection may be made later suitable for a crop.

Early-flowering Chrysanthemums.—If cuttings of early-flowering Chrysanthemums have not been inserted, the present is a good time to put them in, using the young growths which are developing at the bases of the stock plants, which have been wintered in frames or cold houses. Cuttings inserted in sandy soil, either in boxes or in frames, soon make useful plants, and are ready for setting out in May, as a rule, without further stopping, and they will flower in advance of much earlier-rooted plants. Some of the varieties will be in flower by the end of July, and a great number from the middle to the end of August.

Regal Pelargoniums.—Plants which were re-potted during October and have been wintered in cool conditions are breaking into growth, and where these growths are likely to become crowded they should be disbudded freely. If more stock is required these young growths may be taken off when about three inches long and inserted in sandy soil. They will soon form roots, and if potted on as required. form useful specimens for blooming next winter,

Autumn-sown Onions.—These have wintered well where sown, but they should now be lifted and transplanted on well-prepared borders. Do not use a dibber for this operation, but stretch a line, and take out a shallow trench with a spade, placing the young Onion plants about six inches apart and filling in part of the soil around the roots by hand, finishing with the spade or rake before proceeding to the next row. Make the soil quite firm by treading. Autumn-sown Onions are very valuable in districts where the Onion-fly makes spring sowings very precarious and although exhibition bulbs may not be produced in this way, useful bulbs for the kitchen use are obtained, and at a time when the larger bulbs are still swelling.

Spinach.—Where Spinach is in demand a sowing should be made now to succeed the autumn-sown crop. This vegetable has wintered very well, and will come in extremely useful when green vegetables are scarce, and is much to be preferred to the perpetual or Spinach Beet usually sown for early use, although the value of the latter should not be overlooked when difficulty is experienced in wintering the prickly-seeded kind. The large quantity of edible leaves produced by Spinach Beet makes this vegetable one of the most profitable of edible foliage plants to cultivate.

FLORISTS' FLOWERS.

CHRYSANTHEMUMS FOR HOUSE DECORATION.

By cultivating early and late-flowering varieties, Chrysanthemums may be had in bloom for over five months of the year. The members of the Masse family commence to flower at the end of August and give a good supply of cut blooms for quite a month. These varieties may be planted out in the open border not later than the first week in May. Previous to planting, the border should be well dug and the soil enriched with a liberal amount of well-rotted manure.

Set the plants about two feet apart and support them to small Bamboo canes to prevent the shoots being broken off by high winds. By June the plants will be growing freely and need the additional support of strong stakes, two feet high, placed one on each side. So soon as the flower buds begin to show, remove all the weak growths, and rub out the centre bud of each spray; this will result in the side buds being stronger and insure a more evenly balanced spray.

So soon as the flowers commence to show colour, cut around each plant with a spade, about six inches from the stem, and in about ten days they will be ready for lifting and transferring to a cool house or pit. The roots require to be well-watered at the time of lifting; a thin shading may be used to prevent the plants from flagging and will protect the flowers from hot sunshine.

Cranford Yellow treated in this way will give an abundance of flowers; Almirante, is best grown in pots, and needs to be disbudded freely to obtain good flowers.

When the flowering season of these Chrysanthemums is over, a few old stools of each variety should be planted out in a cool frame or in boxes and put into a cool frame for the winter. They will need protection from sharp frosts. In the spring they will produce plenty of young growths, with roots attached, suitable for planting out or for potting.

Some of the members of the Caprice family still find a place with me; Kathleen Thompson and Caprice du Printemps in particular are valuable to carry on the succession of flowering at the end of October. In May these sorts need pinching if they do not break naturally. The yellow single, Phyllis Cooper, if pinched back in April, comes into flower in good time. The yellow incurved Advance is rather weak in the stem, but it is very free-flowering and suitable for producing large single blooms. The white, incurved H. W. Thorp may also be grown for sprays or single blooms. Hortus Toulousanus, old gold and bronze, is a variety of pleasing colours; Margaret de Quiney, delicate pink, is of very compact habit and makes a good bushy plant; Mrs. W. R. Smith has fine, massive white flowers; Louise Louppe is another good white sort; the growth is compact and it makes a fine decorative plant.

Mollie Godfrey, deep pink, grows six feet to seven feet tall, and produces very fine flowers. Sandown Radiance is undoubtedly the finest colour of its class and Miss A. Brooker, chestnut-crimson, is a good companion to it. William Turner, white, is a most useful Chrysanthemum for early December blooming; Audrey, orange-yellow, is a very handsome and showy variety. Tuxedo, orange, is a rather tall grower, but late in flowering, being useful in December. Madame R. Oberthur has long, pure white florets and makes a very pretty bloom but is rather weak in the stem. Christmas White and Baldock's Crimson are both useful at Christmas.

The deep yellow variety Nagoya is also at its best at Christmas and is one of the choicest of these Chrysanthemums. The latter, with Enfield White and Winter Cheer, will give an abundance of flowers all through January. Edith Cavell, light bronze, although a large-flowered variety, makes a splendid bush for decorative purposes if grown on and disbudded.

By growing sufficient numbers of all the varieties I have mentioned, an abundance of flowers will be assured from the end of August until well into February of the following year.

The varieties that are grown in pots should be rooted in boxes of a standard size, on the shelves of a greenhouse where the temperature does not fall below 40° at night. They should be grown in a compost of two-thirds loam and one-third decayed leaf-mould, lightened with sand.

Very little damping off will occur when the cuttings are rooted in this way. When nicely rooted they should be potted singly in sixty-sized pots, using similar compost as before with the addition of a little mortar rubble and horse droppings passed through a fairly fine sieve. When potted, place them back in the same temperature for a week or so, then remove them to an almost cool house. Early in March they will require another shift into forty-eight-sized pots, and for this potting the compost needs to be a little coarse; if the loam is of a heavy nature, wood ash and a liberal amount of mortar rubble should be added to it, also the siftings from broken pots and a little charcoal to keep the soil sweet.

The next potting should take place about the third week in April; transfer the plants to twenty-four-sized pots, using a compost of a lumpy nature and rather heavier in texture than before, with plenty of opening material mixed in it; also to every barrow-load of soil add a thirty-two potful of bone-meal.

After potting, the plants should be neatly tied to a small Bamboo stick and placed in a cool pit or frame, where they can be protected from heavy rains and rough winds; during favourable weather the lights should be taken off entirely. By the beginning of June the plants should be shifted into their flowering pots, number twelves being suitable.

The loam for the last two pottings is best pulled to pieces by hand, and for the final shift add a little more bone-meal than advised for the previous potting and a liberal amount of horse droppings in a coarse state. After potting, place the plants in their summer quarters and attend to staking and tying, as required. By giving the plants four shifts I find they are able to withstand the heavy rains during the summer, which often occur after their final potting. *E. Neal, The Gardens, Tilgate, Crawley.*

PERPETUAL-FLOWERING CARNATIONS.

I quite agree with Mr. Grigor Roy (see p. 122) regarding Mr. H. Howard Grace's article on Insect Pests. I had under my charge at the Preston Hall Training Colony, Aylesford, Kent, some 50,000 perpetual-flowering Carnations in all stages of growth, 25,000 on the bench system, the remainder in reserve and for pot culture. I was in no way troubled with red spider as I kept the hose going during spring, summer and early autumn in houses with the bench system, while other plants were syringed, using force, with reasonable care.

The temperature maintained during winter, and on dull, sunless occasions was 55° by day, and 50° by night, and we used artificial heat to ensure a buoyant atmosphere. Air was admitted on all favourable occasions, always avoiding cold draughts. I prefer the temperature to rise with sun heat rather than admit cold winds. At the same time, there must be a check on artificial heat, because therein lies the encouragement of red spider and all other insect pests.

During the six years I was at Preston Hall, not a bloom required wiring; some of my friends who may see this will quite bear me out on that point, while the many prizes we won, including the Clifford Cory Challenge Cup in 1922, will show that spraying is necessary to ensure success. *J. Childs, The Gardens, Chalet du Bois, Le Touquet, France.*

BULB GARDEN.

GALANTHUS CILICICUS.

I was much interested in Mr. Besant's note on this species in *The Gardeners' Chronicle* of February 6 (p. 98). He states that at Glasnevin it is rarely (if ever) in flower before the New Year. I planted a few bulbs in October, 1923, in a warm corner of the rock garden, sheltered from the east by a large rock. These produced a few flowers the following December, but in December, 1924, they all flowered well, and better still in November, 1925. I have no record of the date on which the first flower opened, but it was quite early in November, and the clump continued to bloom until well into December—altogether a most satisfactory performance. This is a mild district, which may have some influence on the period of flowering, but it seems to me more probable that there are different races of the Cilician Snowdrop in cultivation, some of which naturally flower much earlier than others. At any rate, it is a valuable addition to gardens where Snowdrops are appreciated as it is sure to flower some weeks before the ordinary G. nivalis, or G. Elwesii, have even appeared above ground.

Mr. Besant mentions Iris unguicularis Imperatrice Elizabetha as flowering well at Glasnevin this winter. It is the only one of seven or eight named varieties of I. unguicularis which refuses to flower at all in my garden; its neat habit and narrow, grassy foliage suggest close relationship with I. u. cretensis, which is flowering freely alongside it. My plants came from Glasnevin in April, 1922, but, so far, I have never seen a flower on them. All the broad-leaved forms are flowering with extraordinary freedom this season, the first bloom having opened on October 11. *N. G. Hadden, West Porlock, Somerset.*

TREES AND SHRUBS.

CISTUS VAGINATUS.

This is the only species among a fairly representative collection of Cistuses which must be regarded as too unreliable for out-door culture here. We have grown this Cistus for many years, but it has always suffered more or less from frost, and this winter over 20° for several nights very nearly killed our soiltary plant.

It is probably the tenderness of C. vaginatus which accounts for the shrub's rarity in gardens generally, but it should be a valuable addition to those gardens nearer the western sea than we are, and especially to those in the south-westerly counties. Our specimen has attained a height of about four feet, but the species grows much taller. The leaves are narrow, pointed at each end, and up to six inches in length. These, as well as the young wood, are very hairy and sticky.

The pale purple flowers are larger than those of any other Cistus I have seen (excepting, perhaps, those of C. ladaniferus var. immaculatus), being some five inches in diameter and opening quite flat. This species has never set seeds here, and compared with others of the genus, it is a difficult shrub to propagate from cuttings. *J., N. Wales.*

POLYGONUM BALDSCHUANICUM AND P. AUBERTII.

It is dangerous to write from memory and still more to venture to offer an opinion contrary to that set forth by so good a plantsman as the writer of the note on these Polygonums on page 137. But I do not think Mr. P. Ruy does full justice to P. baldschuanicum, nor may his opinion that P. Aubertii is a preferable plant be accepted by all. Where there is plenty of moisture in the ground and ample space to be filled, there is, I think, no finer plant than P. baldschuanicum, particularly if its flowers are a mass of pure white. It climbs and ramps and flings its flowering branches wide, and blooms from August until the end of September.

Where, however, the soil is too dry for it, P. baldschuanicum is nothing at all.

Yet other merit this sturdy climber has. It propagates itself, and a well-established plant is always a fertile source of supply of well-rooted side shoots. P. baldschuanicum, moreover, is so tolerant of pruning that when it has outgrown the limits assigned to it, cutting down to the ground does not in any way dishearten it—except of course that there are fewer flowers in the first year after cutting it back. P. Aubertii has a more graceful, daintier habit with smaller racemes of white flowers. Trailing over the posts of a rustic bridge on the other side of which is the multijuga variety of Wistaria sinensis, it holds its own in beauty with that lovely plant. Therefore, if I am right in discriminating between the two species, the conclusion must be reached that each is a splendid garden plant, and both should be grown by everyone who can provide them with the moist conditions which, in my experience, are essential for the successful development of these plants.

It may be added that the white form of P. baldschuanicum fades slightly to pink, and that the pink form is generally of too indecisive a tint to be quite pleasing. *A. N.*

WOODLAND GARDEN.

ANEMONE NEMOROSA.

Our common Wood Anemone is one of the most delightful of all spring flowers, and here, in the west, it has an extraordinarily long season, and gives us an infinite range of varieties in the colour of the flowers. Commencing with a rather small, pure white form, which often appears as early as the Lesser Celandine, its flowering continues well into May, the latest to bloom of those indigenous to our own woodland being a large-flowered variety, the blossoms of which are a bright mauve on the reverse and lilac within. Between these two extremes there are numbers of forms showing graduations of colour and size.

The well-known varieties Allenii, Robinsoniana, Blue Bonnet and others of the class colonise freely, as might be expected, since the wildlings find our light loam and westerly slope congenial. But the so-called Welsh Anemone (A. n. var. coerulea) I have not found growing in woods in this or any other part of the Principality. It occurs in vast numbers on many a breezy, treeless, upland sheep-walk, especially it would seem in the slate producing districts. Last year I came across some fields and a railway cutting which were liberally blued by these pretty flowers, but on closer examination I noted that here again there was a very wide variation in the colour—whites, thin pinky-lilacs and both pale and lavender-blues, all growing together in the grass The flowers were rather small (possibly because the altitude was considerable), and they were held perfectly upright on the stalk.

These blue Anemones flower a good deal later than the rest in my experience, which may account for the lateness of Blue Bonnet, which is said to be derived from the Welsh Anemone. Then there is A. n. var. cornubiense (Robinsoniana cornubiense) also one of the later ones, but this form—if I have the right plant—is of poor colour, not so good as many of the wild mauvy-purple ones.

A. trifolia, which some consider to be an alpine form of A. nemorosa, is in every respect an admirable little plant. Rather heavier in leaf and stiffer than our own species, A. trifolia is a robust coloniser, soon making very dense mats of roots and covering many yards of ground. The milk-white flowers, which nod above the pale green leafage, are exceedingly pretty, and they are borne from March to May. I have seen this little plant flourishing in the densest shade of a Douglas Fir, and have yet to find conditions under which it will not do well. Farrer refers to a lovely blue variety of A. trifolia which he saw in the woods near Misurina, but this I have never seen nor have I been able to obtain it. *A. T. Johnson.*

MR. F. KINGDON WARD'S EIGHTH EXPEDITION IN ASIA.*

XXVI.—Through Bhutan to Railhead.

Both Cawdor and I had superficial frostbites on our noses as a result of the last few days of our crossing the Himalaya, and were glad to get down into warmer regions. However, the weather in the valley of the Nyamjang river (Fig. 72) was distinctly bad for the next few days, and a lot of snow fell on the mountains, making it cold and damp.

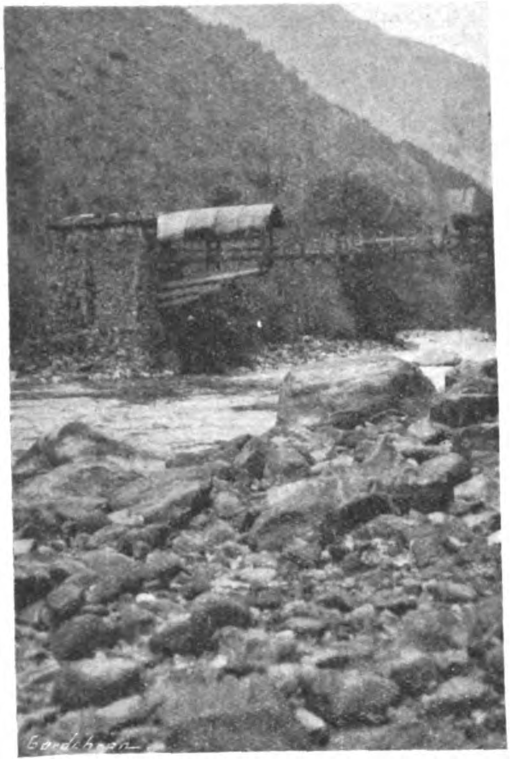


FIG. 72.-CAPT. F. KINGDON WARD'S EXPEDITION; BRIDGE OVER THE NYAMJANG RIVER, BHUTAN.

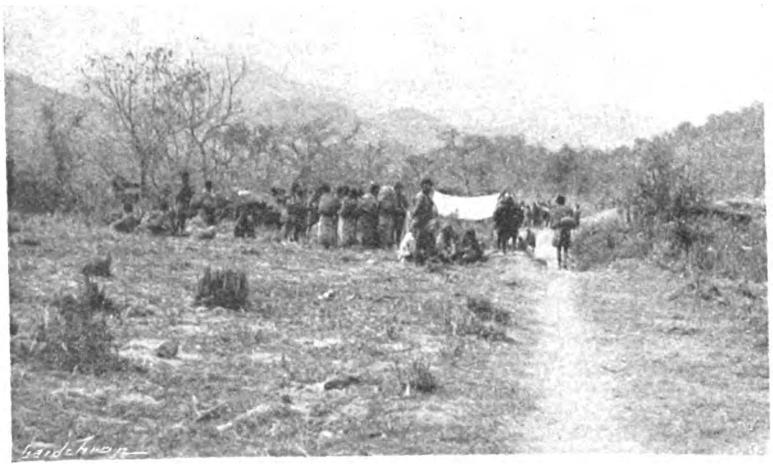


FIG. 73.-CAPT. F. KINGDON WARD'S EXPEDITION: THE PLAINS OF ASSAM, OVER THE FOOT-HILLS OF BHUTAN.

All our pack transport returned to Tsöna, and from this village to India we had to depend on cooly transport. So we started off on February 10 with forty-five coolies (Fig. 73), and did a full day's march through lovely forests, descending some 2,000 feet, which took us right out of the snow; and on the following day, too, we descended such a long way, sometimes down flights of steps, that we quite expected to reach the plains within a week.

At first the forest was Conifer, with many Rhododendrons, including a 'Lepidotum,' the 'Arboreum' already referred to, and R. Maddeni. The 'Arboreum' was here a small tree and a little lower down we met with it in flower.

From Tsuga and Juniper, we descended into forests of Pine, with a great variety of bushes by the stream—Rosa, Piptanthus, Salix, Clematis (in flower), and so on, very much as in the Tsangpo gorge. Still lower down, during the third day's march, we met with many things in flower—a white Daphne, Berberis sp. and a whole sheet of purple Primula atrodentata under a waterfall. By midday on February 12 we were amongst semi-tropical vegetation. There were Ficus trees; there were Orchids in bloom on the branches: there were Aroids, and flowers such as species of Strobilanthes, and Crawfordia. And then abruptly the whole scene changed. The broad, rocky valley contracted to a dun-coloured glen with no way through, and we had to climb 1,500 feet up the cliff by a very stiff path, and then wind round the gullies, from spur to spur.

We were now in a much drier climate, in fact in a more typically dry-winter region, most of the storms passing over this part of the valley. Consequently the slopes were clothed with Pine and Bracken, with Oak, and with Rhododendron arboreum, now in full bloom. Prominent on the rocky, grass clad slopes were masses of the brilliant gamboge Lindenbergia grandiflora, one of the Scrophulariaceae, with flowers rather like a Bartsia. We passed through several villages, the houses being of stone, sometimes roofed with Bamboo; cultivated terraces were already green with spring Wheat.

On February 13 we had to descend to the river again, cross by a hammock bridge, and climb high up the other side, where we found Oranges growing. Next day, continuing high up on the right bank, over sharp schistose rocks which were rapidly cutting my last pair of boots to ribbons, we passed the junction of the Tawang river with the Nyamjang—the route we had intended to follow from Tsöna, and immediately afterwards crossed the frontier into Bhutan. We expected to be held up here, but finding the first Bhutanese village deserted, we persuaded our carriers to go so far as the next one; and though it was quite early in the afternoon, here we had to stop and explain our presence. However, the local Bhutanese authorities, far from being unkind, were very helpful, and promised us transport for the following day, when we should reach Trashigang Dzong, where the local chieftain resided.

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* The previous articles by Mr. Kingdon Ward were published in our issues of April 12, May 17, June 21, August 9, August 30, September 27, November 1, 1924; April 4, May 9, June 6, June 20, July 4, July 18, August 1, August 15, September 5, September 19, October 10, October 24, November 21, December 5, December 19, 1925; January 2, January 16, and February 13, 1926.

From this village we could see the spurs running down to the plains, and had it not been for the dust haze, which at this season always hangs over northern India, we might have seen the plains themselves ; we were told they were only six marches distant. Up here there was still a good deal of leafless Oak forest, with scarlet Rhododendron and Pine trees scattered down the slope. On the 15th we descended once more to the Nyamjang, now a big river, and continued by it for some miles to Trashigang bridge. Owing to difficulties with the transport, our coolies did not reach the bridge-house till nearly midnight, and then we had to leave half of them behind to join us next day.

A fine iron-chain bridge spans the river here at a height of a hundred feet above the water ; and 1,200 feet up the opposite bank the *dzong* sat astride of a narrow ridge. However, the kind old chief sent ponies down to the bridge to bring us up, and we arrived in state next morning. All he asked was that we should spend the day with him, which we did ; we also gave him our folding camp table.

There were many Leguminous trees down in the river valley—or gorge, rather, as it was in this comparatively arid region. I noticed species of Cassia, Indigofera, Desmodium, Acacia, Bauhinia, and Butea, some of them in flower. But it was only fringing the river that one got this strip of forest vegetation, with clumps of Euphorbia, and a few rather striking flowers such as Sedum and several Orchids. Higher up, the precipitous, rocky cliffs were almost bare except for scattered Pine trees ; and we had to ascend 2,000 feet to 3,000 feet from the river in order to find solid forest again, except in the deep gullies. A small Ceratostigma with brilliant cobalt blue flowers was seen near the *dzong*.

The pace had now slowed down considerably, but on February 17 we got off again, the Dzongpön lending us ponies for the first day's stage ; we were told we should reach India in five marches ; but as we discovered, they would need to be long ones, and one cannot make long marches through almost uninhabited country with a column of forty-five porters.

After leaving Trashigang we began to climb again. The road to India now leaves the river slanting away to the south-east and crossing a number of its tributaries, separated from one another by Pine-clad spurs ; the country, in fact, recalled many parts of western Yunnan. Each day we crossed a spur, from one valley to the next, so that sometimes we were in sub-tropical jungle, amongst Tree Ferns and Palms, and sometimes in the open Pine forest, where the scarlet Rhododendrons were in full blaze. They flower much earlier here than they do in Sikkim, a little further west.

The first two days was a continuous climb, as we had to get out of the main valley ; and on the second day we crossed a pass at a height of about 9,000 feet, the highest we had been for some time. But after descending to the first stream, we never again climbed above 5,000 feet.

At this altitude in eastern Bhutan we found the exposed slopes sometimes clothed with long grass and Bracken, with scattered clumps of Gaultheria, Vaccinium, and other underbush shrubs, and sometimes wooded ; the trees were Rhododendron arboreum (small compact and gnarled trees, hoary with age), Oak, Alder, (A. nepalensis), Schima, etc. The sheltered slopes, however, were clad with thick forest containing a large proportion of Bamboo, and such large-leafed Rhododendrons as R. grande. Pieris formosa was in flower in the Pine forest.

The road was surprisingly good for such a sparsely-inhabited, hilly country, and we met numerous gangs of coolies, who had been down to the plains, returning with goods for the market at Tawang or elsewhere. Mules, ponies and even sheep are used for pack transport.

The forests of scarlet Rhododendron were now a gorgeous sight, and it was surprising to find this species blooming so freely at 5,000 to 6,000 feet in the Pine forest, and then see the same thing 4,000 feet lower down, flowering amongst the Screw Pines, Engelhardtias, Clerodendrons, arborescent Compositae (Vernonia), and Strobilanthes of the jungle. I thought these last had rather more carmine flowers, while at higher elevations the flowers were blood red, or crimson; but the flowers certainly change shade as they age.

In the Pine forest, on steep, rocky slopes, I noticed scattered plants of a Lily, which looked as though it might be quite a fine thing. It is a plant of about two feet, bearing a single terminal flower, which, judging by the size of the rather oblong capsule, must be big. The bulb is small, and grows about six inches down, in a very light, friable soil which, though fine, is full of angular stones. During the winter it is evidently kept very dry, while the precipitous slope and gravelly soil ensure perfect drainage in summer. This plant may be L. Wallichianum, or a variety of it. (K.W. 6428). In the valleys were many Acanthaceae in flower, and two common species of Buddleia ; often the boughs of the trees were bulging with Orchids.

On February 20 we did a short stage to the summit of the last big ridge, and arrived in the afternoon near a village, the first we had seen since leaving Trashigang. We found the headman in a peevish frame of mind, superintending his flock, who were mending the road. Our coolies, therefore, put down their loads, and announced their intention of returning, nor could we persuade them by bribery or corruption to march another step ; to do them justice, they were within their rights in refusing. As it was quite early, and India was a bare twenty-five miles away, we suggested to the peevish headman that he should provide transport on the spot, to enable us to do a few more miles before dark. To this he rudely replied with the Tibetan equivalent of "Who the blank blazes are you ?" and announced that he was supplying no coolies, either now, or next day, or next week. Deadlock. After a further exchange of rudeness, we announced our intention of going on, coolies or no coolies, and, if necessary, marching all night till we reached the frontier. Dick was to come with us, Sunny Jim was to remain behind and look after the baggage till we could send help. We then put food in our haversacks, rolled up a blanket apiece, and prepared to depart—we were not bluffing, but we had effectually called the peevish headman's bluff. He suddenly remembered that the jungle was full of tigers ; but we told him we liked being eaten by tigers, though we took the precaution of adding a gun to our baggage, and were just starting, when the headman's mercury fell to zero, and almost with tears in his eyes he begged us not to go, promising anything if only we would stay the night.

All we wanted was coolies for next morning, and the bargain was soon struck. Next day we started down the spur, and after an exasperating march, in which three-quarters of the coolies fell out, reached the valley below at nightfall. We were still some miles from India.

Next morning we started off down the forested glen on what we fondly hoped would be our last march, for the sky had cleared, and the gloomy and rather cold weather of the last few days had turned to the hot drought of Bengal. We had not gone far when we were met by two *sais* leading saddled ponies, which they invited us to mount ; and half-an-hour later we arrived at the camp of His Highness the son-in-law of the Maharaja of Bhutan. Here we halted for a little light refreshment of brandy and cream-crackers before pushing on to the last village, Devangiri, which overlooks the plains. His Highness lent us ponies and called up a fresh relay of porters ; and we gave him one of our tents and an electric lamp, thereby making him our friend for life. In the afternoon we reached Devangiri, and could see the plain of Assam below, dim in the haze ; we could have reached the frontier before nightfall, but the porters could not stay the course, so we spent one night in Bhutan. February 23 dawned at last, and we raced down the hill, and soon after mid-day stepped out of the leafless, monsoon forest on to the open plain. A sentry challenged us, and next moment we stood on British territory. A motor was waiting for us, our bedding was piled on, and at four o'clock we started for railhead twenty-four miles away ; our heavy kit was to follow in bullock carts during the night.

It was just dark as we came into Rangiya, and saw the red lights of the Assam-Bengal railway ahead. Arrived at the station we made up our beds on the waiting room floor and ordered dinner, which, of course, consisted entirely of curried chicken. Had anyone asked us what was the most wonderful experience of that famous night, I think we should have replied, "a clean table cloth and a bottle of beer."

Next day the Assam mail came in during the afternoon (there is only one train a day, each way), and we boarded a compartment with two Englishmen who were going home on leave—the first white men we had seen for nearly a year ; and on the 25th we reached Calcutta. The journey was over. *F. Kingdon Ward.*

NOTES FROM EDINBURGH.

The approach of spring is indicated by the flowering of Rhododendron moupinense in the rock garden at Edinburgh, and R. parvifolium, with deep, pink coloured flowers, and rather a straggling habit of growth, is also in flower. Saxifraga Burseriana is flowering, together with a number of its varieties, the best of which just now are S. Burseriana major, and S. Burseriana tridentata. The variety Gloria appears to be slower in opening its blossoms. Primula Winteri is in flower under the protection of an overhanging rock, although pot plants, enjoying the shelter of a cold frame, have been in flower for some time. Another interesting species in flower in the same frame is P. Palinuri, with rather thick leaves and deep yellow flowers. In a cool greenhouse, the dainty P. malacoides, together with a white double-flowered variety which goes under the name of P. malacoides alba fl. pl. are both in bloom.

Between the stove houses the graceful Galanthus nivalis robustus has been flowering for some time, and doubtless the shelter and warmth afforded by the houses are responsible for its appearance in advance of the type, of which it is but a larger edition. In an adjacent bay, another little bulbous plant, Scilla amoena, is very pleasing ; it is a pretty, blue-flowered plant, with pendant blossoms.

Around the base of a Lime tree the Winter Aconite is beginning to form a golden circle. This admirable little plant has long been a denizen of our gardens, being introduced into this country in the sixteenth century, and it was figured by Gerard in his famous *Herbal* under the name of "Winter woolfesbane (Aconitum hyemale)." Like Crocuses, Snowdrops and other bulbous plants which flower in early spring, the Winter Aconite is seen to best advantage when planted in grass.

A few flowers of Lapageria rosea have appeared, and in a corner of the Rhododendron house, the white variety, L. rosea alba, flowers unobtrusively. A native of Chili, Lapageria rosea was introduced into this country in 1847, when a plant was sent to Kew. Messrs. J. Veitch and Sons later received plants through their collector, Thomas Lobb. In 1849, a figure of the species appeared in *Bot. Mag.*, t. 4447, which was prepared from herbarium specimens aided by coloured portraits of the plant in its native habitat. The generic name was given in compliment to Josephine Lapagerie, wife of Napoleon Bonaparte. A hybrid between Lapageria rosea and Philesia buxifolia, raised by Messrs. Veitch and Sons was described and figured by Dr. Maxwell T. Masters, in *Gard. Chron.*, 1872, p. 358, as Philageria Veitchii. Unfortunately, this interesting bigeneric hybrid appears now to be almost lost to cultivation. The interesting little Camellia cuspidata is flowering in the corridor, where it is trained, espalier fashion, on the wall. The white flowers, with their golden stamens, although not large, are attractive, and the dark, glossy-green foliage is extremely neat. If the flowers were larger there is no doubt this species would commend itself to a wider public. Quite a good display was made recently by Luculia gratissima, a well-known garden plant, and much valued for its pink flowers which it produces so freely. Its relative, L. Pinceana, does not appear to bloom so freely. A very excellent flowering plant which is rightly given considerable space on the wall in the corridor is Cestrum Newellii, a species which has previously been included in the genus Habrothamnus. At this time of year it makes an exceedingly attractive display of its fine red flowers. It will shortly be joined by other members of the genus. Cestrum elegans is quite a distinct species with dark green foliage and deep red flowers. C. aurantiacum has smoother leaves than the other two, and produces a mass of orange flowers, which are succeeded by white fruits. The finest member of the genus is C. Smithii which smothers itself with pretty pink flowers, which give place, later, to fine, dark red fruits which are produced in equal abundance.

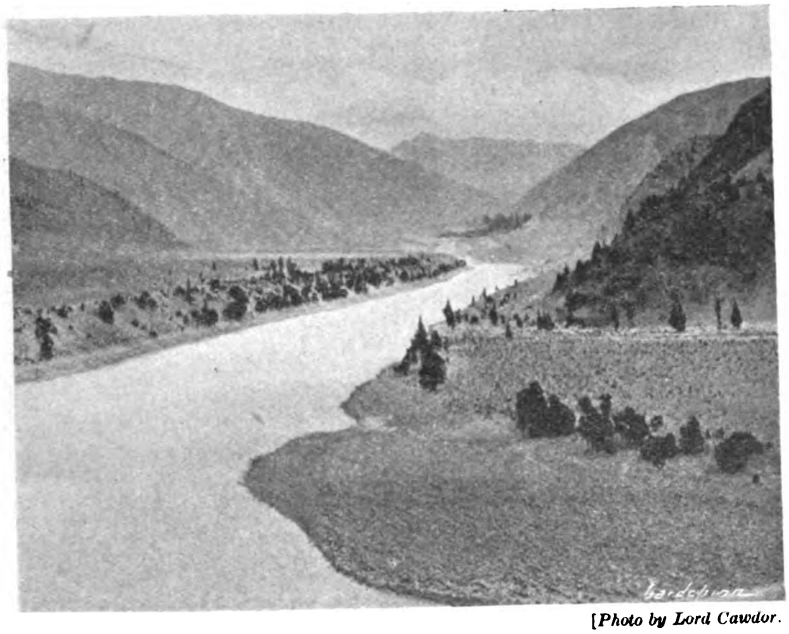
[Photo by Lord Cawdor.

FIG. 74.—CAPT. F. KINGDON WARD'S EXPEDITION: JUNIPER TREES AND SAND DUNES IN THE TSANGPO VALLEY, NEAR TSETANG.

In one of the stove houses Napoleona cuspidata is in flower. This is more curious than ornamental, as the pink and white flowers sit so closely on the stems and branches that they are mostly concealed from view. The flowers are produced quite freely, and in themselves are very pretty. The genus belongs to the family Myrtaceae, although the structure of the flower is such that, at first sight, one would be puzzled to place the plant in its proper family. In the other stove house a display of Centradenia floribunda has been maintained for some time, and a good effect was produced by a few plants of Begonia socotrana. *Robert H. Jeffers, Edinburgh.*

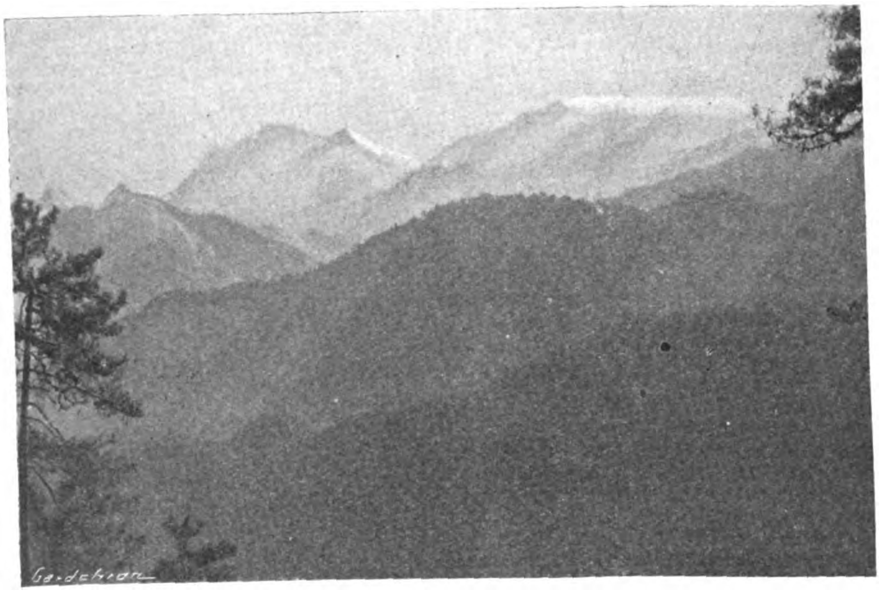
FIG. 75.—CAPT. F. KINGDON WARD'S EXPEDITION: THE LAST OF THE HIMALAYA.

NOTES FROM WISLEY.

The duration of the flowering period among shrubs is very variable. By some, a long period of bloom is maintained by a succession of flowers while others remain in flower by reason of the persistence of their blossoms. In the case of Hamamelis mollis the petals, contrary to their appearance, are remarkably tenacious. A flowering twig will remain fresh and fragrant in a jar of water for three weeks, and plants which I mentioned as being in flower at Wisley a month ago are still blooming.

In addition to Hamamelis many other shrubs are now flowering in the gardens of the Royal Horticultural Society, such as Pieris japonica and Skimmia japonica. Female plants of the latter still retain their glossy, scarlet fruits. The early-flowering Rhododendron dauricum is also in bloom, and unless the weather is unfavourable, there should be a particularly good show of Azaleas in the wild garden this spring.

In the field garden, Erica darleyensis, which has been flowering well throughout the winter, seems likely to last for some time yet, and many varieties of Erica carnea are now becoming conspicuous; among the best of these are King George, Queen Mary and James Backhouse, in addition to which are the white-flowered Erica carnea var. alba and some purple-foliaged varieties of the same species, such as E. c. atro-rubra and E. c. Vivelli, with bells more elongated and of a deeper crimson than those of the type. A purple-leaved variety of Erica mediterranea is also in flower in company with the dwarf-growing E. m. nana and E. m. hibernica.

The alpine house is now full of flowers, a large proportion of which is produced by Saxifrages derived from the Kabschia Saxifraga Burseriana. Of the glorified editions of the type S. Burseriana major and S. B. Gloria may be mentioned, while a yellow-flowered variety is seen in S. B. sulphurea. S. B. tridentina is distinguished by the erect arrangement of its petals, and S. B. speciosa by the slight crenation of its very large petals, but perhaps the prettiest and most distinct variety of all is S. B. crenata. This shows a very regular and marked crenation along the outer margin of the petals, and is still further distinguished by its darker foliage and the dark red stems and calyx which render the flower equally, if not more attractive when viewed from beneath. A hybrid between S. Burseriana and S. apiculata is S. Bursiculata, whose flowers are white. Several pretty little pink-flowered Kabschia hybrids are now blooming, such as Riverslea, Brenda, Elysum and Perle Rose, the flowers of which are of a more rosy pink than those of preceding kinds.

Other bright attractive plants in flower in this house are Iris reticulata, Soldanella montana, Morisia hypogaea and some double yellow Primroses.

The Crocuses in the frames near the alpine house are nearly at their best, and one or more varieties of at least fifteen distinct species may be seen in flower Many of these remain in flower for a long time, as, for example, Crocus Korolkowii, which has now been in bloom for four weeks. Some of the most fascinating are varieties of C. chrysanthus, many of which bear well-chosen and descriptive names, such as Silver Pheasant, Golden Pheasant, Lapland Bunting and Bumble Bee. There are also some pretty forms of Crocus Sieberi, C. corsicus and the deep orange C. aureus. Many of these are in flower in the open at the foot of the rock garden, where a deep yellow-flowered variety of C. chrysanthus, named fusco-tinctus—owing to the buff colouring on the back of the outer perianth—is in bloom.

Spring blossoms will soon be appearing all over the wild garden, and already there are large numbers of flowers of Hellebores, Snowdrops and Leucojum to be found, and the giant-flowered variety of the latter, named Wagneri is much in evidence. *J. E. G. White.*

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LILIES FROM SEEDS.

UNTIL comparatively recent times the advocacy of the systematic propagation of Lilies by seeds has been a thankless task, and waste alike of breath, ink and paper. Here and there some enthusiastic amateur of the past made a practice of raising Lilies by what has always seemed to the writer the most natural way of raising them, but the great majority of amateurs and traders seems always to have been content to pursue the cultivation of Lilies by means of bulbs.

In a paper read at the Royal Horticultural Society's Conference on Lilies in 1901, the late Mr. F. W. Burbidge urged the more frequent raising of garden Lilies from seeds. "We want," he said, "at least one cultivator to do for our garden Lilies what Mr. Engleheart has done for our Daffodils, and I think we should then hear far less of Lily failures and of the Lily-fungus disease. Apart altogether from variations in form and colour, we shall be able to obtain healthier and more permanent stock bulbs from seedlings as raised at home under cultivation, than we shall by the almost invariable planting of imported bulbs."

In the main Mr. Burbidge was undoubtedly right in his conclusions, but that he was alone among his contemporaries is clear from the fact that the paper in question[*] contained the only reference to the seminal propagation of Lilies at the Conference.

No doubt the prime difficulty confronting the would-be grower of Lilies from seeds has ever been the same, for while the bulbs of many Lilies are not always easy to obtain, the seeds are often even more elusive; but the difficulty is one of degree, and in the writer's experience is solved by persistence which ultimately brings its own reward. Of recent years the almost universal widening of means of communication has smoothed away many of the difficulties which formerly beset the cultivator of Lilies, while the constant exploration of Western China and the generosity of those concerned in it have made matters comparatively easy where the many new Lilies of that great country are concerned.

Apart from Duchartre, who made a critical study of the seeds of such species of Lilium as were available to him, Max Leichtlin was probably the greatest protagonist of the seminal propagation of Lilies in modern times. He had correspondents in all four continents, and from them received seeds of many genera, including Lilium. Leichtlin had an almost uncanny *flair* for raising plants from seed, and those which beat him must have been difficult indeed. He never subscribed to the dictum, enunciated to the writer by a well-known nurseryman many years ago, that growing Lilies from seeds was not worth while, and happily, that view, once held by many traders, has undergone considerable modification of late years. How far that fine modern species, L. regale, has contributed to the change of view is a matter of opinion, but their experience of the ease and rapidity with which that Lily will reproduce itself has undoubtedly led many plant propagators to try their hands with seeds of other Lilies.

The increasing interest in gardening and in the cultivation of plants, and the dissemination of information about their ways and needs, have not been without effect, too, on the change of view, and the knowledge that home-grown bulbs of Lilies are much to be preferred to those which are imported and necessarily more or less dried, and consequently weakened, is no longer confined to those who make a speciality of growing Lilies. Though not sufficiently important to be of serious moment to the country, the economic aspect of the case, too, is not without interest, for there does not seem any object in paying the traders of other nations for bulbs of the many Lilies which can easily be grown in this country.

Raising Lilies from seeds is not an operation involving any especial skill, and is child's play compared to the seminal propagation of some genera of plants. No heat is needed, for Lilies will not be hurried, and, in the writer's experience, undue haste only seems to defeat the end in view. Some species are quick to germinate and others habitually allow a season to elapse before they move, but the writer does not know if this is natural or due to a change of climate and environment.

The period of germination and the percentage of it undoubtedly depend in some measure on the nature of the harvest; if the seeds are well-ripened, the rapidity of germination and the resulting crop of seedlings is perceptibly increased. The harvest of 1921 provided an instance of this, and that of last year an instance in the contrary direction. In the main the writer has not found that adventitious aids to germination, such as the saturation of the seeds in a solution of iodine, permanganate of potash, etc., is of material benefit in the case of reasonably fresh seeds, and he has not tried it in the case of the old seeds. Given well-ripened seeds, there does not seem any marked loss of germinating power up to three years. After that the percentage of germination falls off. In the case of ten-year-old seeds of L. Henryi, the writer found that the percentage was only ten of the normal fresh seeds.

As a general principle, all Lily seeds may be sown when Nature sows them, that is, when the capsules open. In course of time the grower will learn which species germinate at once, which wait the turn of the year, and which lie dormant for a season. In a good ripening year, seeds of L. tenuifolium, L. pyrenaicum, L. longiflorum, L. regale, and L. philippinense var. formosanum, for instance, may germinate in two or three weeks, and if hard weather does not supervene, may finish the first season's growth before the turn of the year —not to be confused with the calendar end of the year. In that way a season is gained by early sowing. On the other hand, seeds of L. rubellum and L. japonicum, for example, among others, usually remain dormant for a season.

In practice, the writer has noticed that deep seed pans yield more satisfactory results than those of the usual shallow type, probably because the larger volume of soil in the deeper pans is less subject to atmospheric changes than that in shallow pans. On the other hand, earthenware pans six to eight inches deep are cumbersome, and though wood may be substituted for earthenware, it does not seem to yield such satisfactory results with Lilies as with seeds of some other genera.

As a rule, Lily seeds are sown at too shallow a depth. Max Leichtlin practised deep sowing with the seeds of most bulbous plants, and always covered the seeds of Lilies with from three-eighths-of-an-inch to half-an-inch of soil. Incidentally this practice has the merit that there is little chance of disturbing or washing up the seeds when watering, though that tendency may be counteracted by using a hand or knapsack sprayer in place of the time-honoured watering-can, for no matter how well the rose of the latter fits the spout, it is all but impossible to avoid large drops of water falling on the pans.

When a large number of pans has to be dealt with in frames or houses, the latter can be fitted with vapourising nozzles connected to a pipe with water under pressure from a main or tank, and in that way watering is reduced to a simple operation involving no more labour than that of turning on the valves. Where mist spraying is practised, the water is so broken up into aqueous particles that its temperature does not seem of vital importance, but with watering cans it should always "have the chill off." The writer has known the growth of thousands of Lily seedlings to be seriously checked by the thoughtless use, in spring, of cold water. Watering at dusk in summer seems to have decided advantages over morning watering.

The nature of the compost used for Lily seeds is all important, and happily there is little need for experiment in that direction, for though the proportions of the ingredients will be varied at the whim of individual gardeners, those which yield the most satisfactory results are known. The basis of all such composts is loam, and though no word is possibly more misused, to the Lily grower it means broken down old turf, free of lime and without stones. If this is mixed with an equal bulk of broken down humus, free of sticks, and half the bulk of grit, with a powdering of charcoal dust, the result will be as suitable and sweet a medium as any raiser of Lilies can wish to have. But much depends on the kind of grit used; fine granite or gravel is useless as it is non-absorbent, and except hard sandstone, there is nothing to equal broken down red earthenware in the form of garden pots and roofing tiles, or soft red brick.

This material has been much used in the past in the manufacture of concrete paving slabs, and of late years has been largely employed in the construction of hard tennis courts. It is obtainable from any brickworks equipped with crushing machinery, and has the inestimable advantage that it is porous and that its colour enables the user to see what he is doing with it, as it were. The material can be crushed to any size, but if the cultivator takes everything that comes from the crusher which will pass a three-sixteenths inch mesh, he will have the right proportion of fine and coarse grit; it should be half-and-half.

For humus, leaf-mould is usually employed because, no doubt, it always has been employed, but it usually harbours a percentage of weed seeds and it is difficult to rid it of all trace of the sticks which so often develop the fatal white, thread-like fungus. Peat moss dust, which the writer has had on trial for some years at the suggestion of Mr. Maurice Prichard, seems to have several advantages over leaf-mould, and not the least is its apparent sterility. Whatever form of humus and grit is used, intimate mixing with the loam is essential, or the result will be unsatisfactory.

At this time of day there is no need to labour the advantage of soil sterilisation, but except for those with steam plant, complete sterilisation is hardly possible. Dry heat is useless, too, for though it serves for loam, one cannot apply such heat to leaf-mould without reducing it to powder. With peat moss dust and crushed brick no sterilisation is needed, and there only remains the loam, which can be partially sterilised with carbon bisulphide, a deadly but convenient poison gas. Sterilised soil is much less subject to green mould and Liverwort than untreated soil.

Though not always exercised, meticulous care in the technique of seed sowing brings its reward; for the drainage of the pans, for instance, the coarser siftings of the broken brick are ideal, and a square of old sacking over the drainage is a far better covering than the customary layer of leaves.

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[*] *Jour. Roy. Hort. Soc.*, 1901, p. 388.

It should never be forgotten that for the seeds of calcifuge Lilies the compost must be free of any trace of lime. Leaf-mould and loam should be always suspect until tested, though peat moss dust and broken brick, provided there is no mortar with it, carry a clean sheet. Testing for lime is merely a matter of pouring a few drops of acid—sulphuric acid from the nearest electric accumulator, or "spirits of salts"—on to the compost; any bubbling of gas indicates the presence of lime.

Once in sight, seedling Lilies may be handled with impunity, provided, and the point is all important, the roots are not broken. They may be moved if necessary to other quarters without hurt and but little check. Some species of Lilium such as L. giganteum, L. cordifolium, L. canadense and L. monadelphum, do not show their cotyledon above ground in the first season of growth, and may deceive the unwary into the belief that they are dormant. If Lily seeds do not germinate in the second year after sowing there is no object in retaining them, but as a measure of precaution the seeds should be examined, and if found fleshy to the test of the finger nail they may be left for another year.

Seeds of all Lilies may be sown out-of-doors, but those who wish to practice the plan in our climate will find it best to defer the sowing until March; even then the casualties are far heavier than when seeds are sown in pans or in frames, where some measure of protection can be afforded the seedlings from the underground and overhead risks to which they are exposed. Commercially, open-air sowing is doubtless desirable. *A. Grove.*

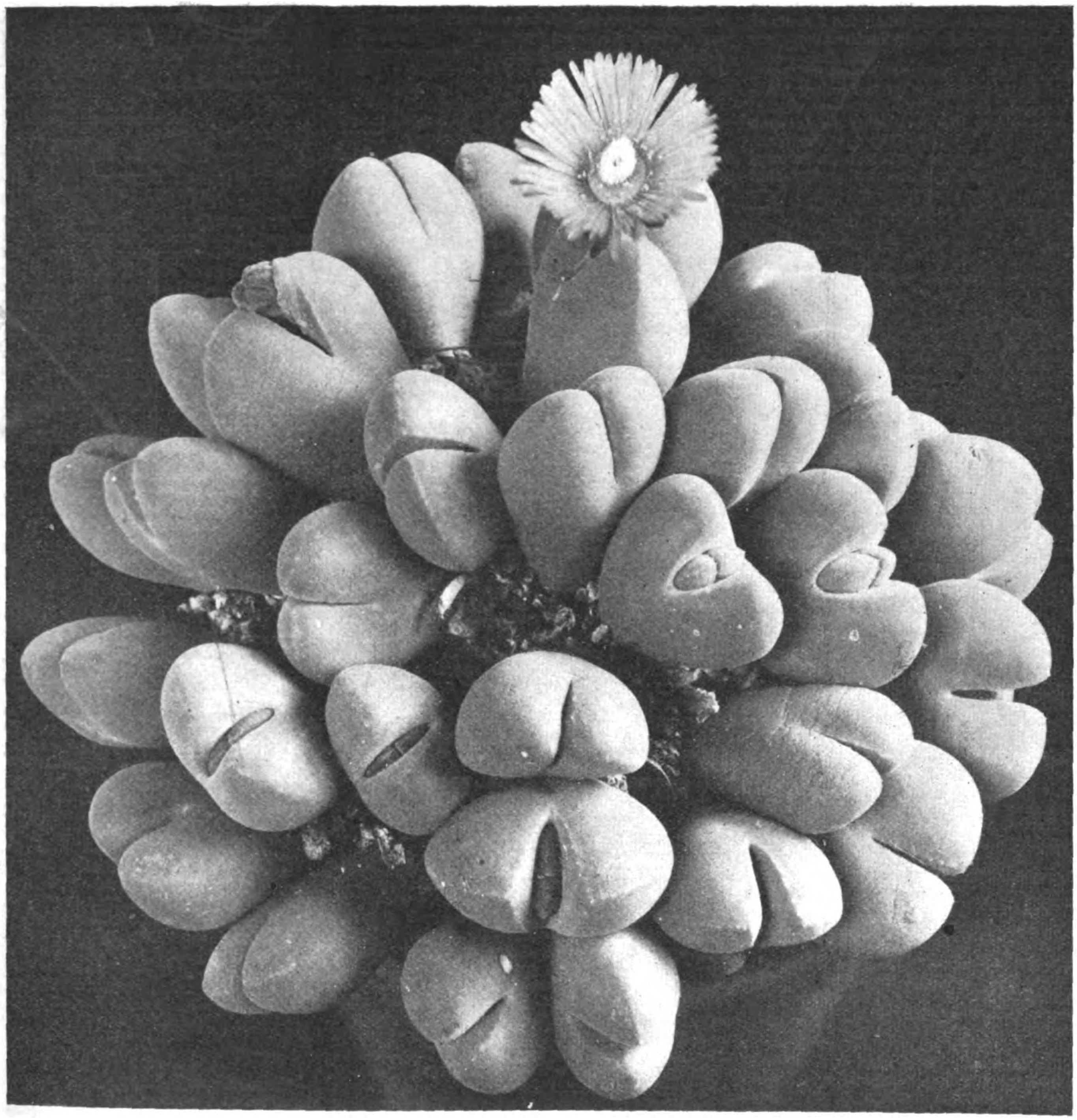

FIG. 76.—RIMARIA ROODIAE, N. E. Br.
Natural size. Flowers orange-yellow, opening at 3.30 p.m. and closing at 4.45 p.m.
Photograph taken at Vereeninging, September 6, 1925.

MESEMBRYANTHEMUM.

(*Continued from p.* 135).

2.—R. dubia, N. E. Br. Habit just the same as that of R. Heathii, with (under cultivation) the growths crowded upon short branchlets from the rootstock. Growths ½-1 inch long, 4-8 lines broad and 3-6 lines thick, obovoid, slightly compressed, with the two leaves of which they are composed usually more or less unequal in length and rounded at the apex, with the fissure between them 4-7 lines deep; surface smooth, glabrous, uniformly glaucous-green, without dots or other markings. Flowers and fruit unknown.

Mesembryanthemum fissum, N. E. Br., in *Journ. Linn. Soc.*, vol. XLV, p. 67, not of

Haworth. South Africa: Locality and collector unknown.

I give this plant a distinctive name with some hesitation, because its origin and its flowers are unknown, and it is so much like R. Heathii that there is nothing but size and a rather different green colour to distinguish it from that species. In my experience, under the same conditions, it increases much more freely and more rapidly than R. Heathii does, is always much smaller, and its growths are longer in proportion to their breadth and thickness. Seen side by side, the two plants certainly seem distinct, and when the flowers of R. dubia are known, definite distinctive characters may be found.

It has long been in cultivation and is known in gardens under the name of Mesembryanthemum fissum, and is the plant I have mentioned under that name in the *Journal of the Linnean Society*, as above quoted. For as the plant was known in gardens as M. fissum and agreed fairly well with Haworth's description, I at that time mistook it for that species. But I have since discovered that a drawing exists at Kew of the real M. fissum, which I had previously overlooked, and which demonstrates that species to be entirely different generically and specifically from this which I now name R. dubia.

3.—R. Roodiae, N. E. Br. (Fig. 76). Plant about 1½–2 inches high, consisting of a clump of growths crowded upon the short divisions of a deeply descending rootstock 6–8 lines thick. Each growth 1–1¾ inch high, with the basal part of the leaves united into a body ¾–1 inch long and ultimately withering into a sheath, their free part 4–9 lines long, 4½–10 lines broad and 4–9 lines thick, ovate or somewhat hemispherical, flat on the face, usually very broadly rounded on the back, with an obscure or distinctly evident keel, and with or without small teeth ¼–½ line long on the edges and keel; surface smooth, microscopically puberulous, green. Pedicels partly exserted, up to 9 lines long and about 2 lines thick, and together with the calyx puberulous like the leaves. Calyx 5-lobed; lobes 3–3½ lines long, broadly ovate, obtuse, 3 with membranous margins. Corolla only seen in a withered condition, 1¼ inch or more in diameter; petals about 5–7 lines long and ½–¾ line broad, linear, obtuse or notched at the apex, orange-yellow. Stamens numerous, collected into a cone, with some of the outer ones loose and spreading from the cone, apparently whitish. Stigmas 9-11, about 1½ line long, and about equalling the stamens, filiform, apparently of a darker colour than the stamens. Capsule when closed about 5 lines in diameter, flattened above and beneath; valves pallid within, with orange-brown expanding-keels. Seeds about ¼ line in diameter, whitish, with a pale brown nipple.

Bushmanland: Precise locality not stated, Mrs. E. Rood!

This species differs from R. Heathii by its greener colour, microscopically puberulous surface, the minute teeth on the edges and keel of the leaves, and orange-yellow flowers. It so much resembles a dried specimen in Kew Herbarium collected by the late Professor Pearson (No. 4071) at Enriet in Little Bushmanland, that at first I thought the two might be specifically identical, but I find the structure of the fruit of the two plants is so different that according to the modern conception of genera they ought not to belong to the same genus. For Pearson's plant has a half-globose capsule whose valves have stout (not thin) entire expanding-keels, with narrow and very small wings; the cells have stiff (not membranous) cell-wings forming a roof-like (not flat) cover to them, with their outer ends turned back and resembling the mouth of a trumpet, and the opening is nearly closed by a large tubercle. There is nothing of the kind in the fruit of Rimaria! It appears to be a case of one genus mimicking another, of which there are many in the vegetable kingdom.

4.—R. Pole-Evansii, N. E. Br. (Fig. 77). Plant with usually only one or occasionally two growths to a rootstock, subglobose or Pear-shaped, up to 1¾ inch in diameter, with the fissure 3–7 lines deep, and the top obtusely rounded, with a faint keel, very firm in substance; surface distinctly or very slightly rugulose, according to the water supplied, glabrous, microscopically granulate under a strong lens, of a pleasing uniform pale dove-grey colour, with a faint yellowish or reddish tint, not dotted. Flower solitary, subsessile, with the calyx just exserted from the fissure. Calyx about 8-lobed; lobes 2–3 lines long, oblong, obtuse. Corolla about 15 lines in diameter, expanding at about half-past two in the afternoon; petals very numerous, in 3–4 series, ascending-spreading and imbricate, not spreading horizontally, 5-6 lines long, cuneately linear, obtuse, according to a drawing the outer are of a delicate pink, and the inner light yellow or yellow with pink tips. Stamens numerous, collected into a compressed cylinder or a slightly conical mass, yellow. Stigmas apparently about 12-15, filiform, longer than the stamens. Capsule, in the only example seen, elliptic in outline, 12 lines in its greater and 9 lines in its lesser diameter, convex and 2-edged below, slightly convex on the top, with about 15 valves and cells. Seeds very numerous in each cell, very minute, subglobosely obovoid, minutely tuberculate, pale brown.

Mesembryanthemum Pole-Evansii, N. E. Br. in *Journ. Linn. Soc.*, vol. XLV, p. 90 (July, 1920).

Prieska Division: Locality unknown, McLeod!

I place this plant provisionally under the genus Rimaria with considerable doubt, for I have not seen a flower of it at present, and the only capsule I have seen was accidently destroyed before I could examine its structure. The details given are partly compiled from drawings and photographs, one of which is here reproduced (Fig. 77), and partly from such remains of the flower as I could find on the capsule, and are therefore necessarily somewhat imperfect. Yet whether it belongs to this or some other genus it cannot be mistaken for any other known plant, being one of the most distinct and striking of the stemless plants of this group that I have seen, its size, shape and pleasing dove-grey colour always making it a very conspicuous plant when seen among other allied genera and species. In South Africa it flowers in May. It has a very meagre root-system and requires very little water. *N. E. Brown.*

(To be continued.)

ORCHID NOTES AND GLEANINGS.

ODONTIODAS.

The mating of the few species of Cochlioda with Odontoglossums has resulted in a new race of beautiful plants, now well-known under the name of Odontioda. This hybrid genus is another instance of a comparatively insignificant parent imparting its desirable colour in an enriched form to its progeny, to which the other parent has given size and strength.

The combination of Odontoglossum with Cochlioda is undoubtedly one of the greatest achievements of the hybridists during the past twenty years. Previous to the introduction of this resulting race the majority of the inmates of our cool Orchid houses produced flowers devoid of brilliant colouring, with the exception of the Masdevallias and Sophronites. When the first Odontioda was shown in 1904 it was at once seen there was a great future for such desirable Orchids. Since the first hybrid appeared there has been continual improvement in the size and shape of the flowers, and in the best of these the vivid colour of Cochlioda has been retained. Upwards of four hundred-and-fifty hybrids are recorded, and it will be obvious there is great variety in such a large number. On account of its bright colour, Cochlioda Noezliana is a parent of the larger number of these. This has been crossed with most of the largest and best Odontoglossums, both hybrids and species, and many of the finest primary hybrids have been used again as parents until we have reached in many cases the third and fourth generation.

Most Odontiodas produce large, handsome spikes of many flowers of a bright, almost scarlet, hue, which are fine for all decorative purposes. Odontiodas thrive under precisely the same conditions as Odontoglossums, but being home-bred plants, they have a stronger and more robust constitution, hence are easier to grow, and produce flowers in greater profusion.

For the production of cut flowers the primary crosses are the best, and there are sufficient distinct forms procurable for a nominal sum to satisfy the most fastidious. If grown in precisely the same way as Odontoglossums, as regards compost, temperature, potting, etc., success will be assured. *J. T. B.*

INDOOR PLANTS.

RIVINA HUMULIS.

The pretty red fruits of this plant are a great attraction and useful for conservatory decoration. Seeds may be sown now in a house with a temperature of 55° to 60°, and the plants from this sowing will be at their best during late summer and autumn. The plant flowers and produces its fruits continuously over a long period. If desired, old plants may be grown on for a second season, when they make fine specimens for standing in beds. The Rivina grows freely in any good potting compost and presents no serious cultural difficulties.

TRACHELIUM COERULEUM.

This blue-flowered exotic is very useful for conservatory decoration, and if seeds are sown at this time the resulting plants will prove very useful for furnishing the stages during late summer and autumn.

Plants retained from last year should now be shifted into eight-inch or ten-inch pots, in which they should make fine specimens for furnishing the conservatory beds during the summer. This useful plant only requires cold greenhouse treatment at all times, and thrives in any good potting compost. *J. Coutts.*

ABELIA GRANDIFLORA.

The hybrid Abelia grandiflora is one of the hardiest members of the genus in general cultivation. It is a late-flowering, evergreen shrub, with glossy, dark green leaves, from one inch to two inches long. The light pink, tubular flowers are borne in clusters at the tips of the growths of the current season. After the flowers fade, the persistent purple sepals are a conspicuous feature.

Abelia grandiflora requires a warm, well drained soil, and a sunny position. Cuttings of half-ripened shoots inserted over a moderate bottom heat root quickly. It is a useful decorative subject for the cool greenhouse. Plants grown in pots six inches in diameter flower freely. If planted out, and the slender branches are trained to a pillar, this shrub will grow twelve feet high, and smother itself with bloom from the base upwards.

CEROPEGIA WOODII.

This interesting member of the Asclepiadeae is a warm greenhouse herb, native of Nata It produces numerous long, slender stems clothed with fleshy, orbicular leaves, marbled with silvery white on the upper surface, Globose, spiny tubers about the size of Peas are scattered at intervals along the stems.

The flowers are curious in structure, pink in colour, tubular, with five dark segments which cohere at the apex. They are freely borne on the trailing growths and show to advantage when the plant is suspended from the roof in pans or baskets.

Cuttings of the lateral growths inserted in early spring will root in heat, and when established the plants should be grown on in a light open compost in a warm greenhouse or stove. *Fred W. Jeffery.*

HARDY FERNS.

Hardy Ferns offer a field of culture replete with interest and beauty, affording scope for the creation of charming scenes in every type of garden. No modern garden is complete without its Fernery. What could be more simple than turning an unprepossessing corner of the garden into a charming and interesting Fernery by judiciously arranging and planting it with some of the gems amongst our British Ferns?

Where ample space is available the possibilities are almost without limit, for the countless forms of beauty to be found amongst these beautiful plants are so extensive that it would be well-nigh impossible to make a collection of every known form even if one desired to.

A study of these plants in their native habitats will be helpful in the preparation of positions suitable for them. The home of indigenous Fern-growth appears to be Nature in unkempt state. Their cradle, the cool, damp dell or wood-ditch, where, beneath trees or rude-thorned Bramble, they rear their delicate fronds, free from the direct influence of the sun and beyond injury from winds from whatever quarter directed.

Some species like the damp, stagnant moisture which attaches itself to an old tree, ankle-deep in water, as with Aspidium spinulosum. Some prefer deep, moist, clayey loam, like the Lady Ferns, while in the native haunts the Bramble-shaded upland woods shelter Blechnum spicant. The longest and strongest fronds of the Royal Fern are to be found in fields of a moist nature where they defy the full sunlight and exposure which such positions experience. Others, again, Asplenium Adiantum nigrum and Ceterach officinarum for example, choose the apex of the dry rock for their native home. Cystopteris fragilis and Asplenium viride, on the other hand, affect the dampness near the hollow.

It will be gathered from these remarks that a particular preparation of the whole Fernery need not be aimed at, but that the object of construction and arrangement should be to give as much variation as possible to enable the planter to find a congenial home to meet the requirements of his various subjects. In surfacing the earth-work of Ferneries, boulders and blocks which are out of all proportion to the space at command are too frequently used. Abundant room should be left for Ferns to be so planted that they eventually cover all, from amongst which blocks and boulders simply project irregularly. Having fashioned the outlines and arranged the surface, planting may be done in March, and a goodly dressing of leaf-mould or other decayed organic matter should be applied, for the Ferns delight in this material.

It is a natural desire of the planter to make as effective a display as possible quickly, and for this purpose a quantity of the common indigenous species may be procured, and the whole area planted thinly with them. These comprise Aspidiums, Aspleniums, Polypodiums, and Scolopendriums, which are easily obtained. For placing in exposed positions, the common Polypody, P. vulgare, is very useful. It should be borne in mind that, with the exception of Scolopendriums, Polypodiums and some of the Aspidiums, Ferns are largely deciduous and in view of maintaining as bright and furnished an appearance as possible the evergreen kinds should be planted liberally. Attention must also be given, however, to the planting of the newer or rarer kinds, without which even the small Fernery will not be complete or possess the means of interest.

In all Ferneries some portions are more exposed than others, and in suggesting the following for positions in prominent fissures, it may be said that Bentham and Hooker's nomenclature is adhered to: Aspidium angulare grandiceps, A. cristatum, A. Filix-mas cristata, A. F.-m. furcans, A. F.-m. grandiceps, Polypodium vulgare cambricum, Scolopendrium vulgare digitatum, S. v. marginatum and S. v. sagitato-cristata. Lower down in deep soil and in damp and shady places should be arranged in prominent positions such abnormal forms of the Lady Fern as Asplenium Filix-foemina multifidum; A. F.-f. grandiceps and A. F.-f. Fieldiae. These make an interesting group as showing the wonderful sportive character of these elegant plants. Allosurus crispus, the Parsley Fern, gives variety by the differences existing between sterile and fertile fronds. Asplenium viride, a dwarf grower, is a good associate. Blechnum spicant imbricatum is useful for elevations in deep soil, while Cystopteris fragilis and Osmunda regalis cristata like deep, moist soil and positions not too shaded. Polypodium Dryopteris and P. Phegopteris, the much admired "Oak," and "Beech" Ferns, respectively, should certainly be included.

Though the shade of trees is desirable for Ferns, wherever an Elm exists it will be well to remove it before the Fernery is formed. The surface-rooting characteristic of the Elm is so great that it quickly impoverishes the soil, robbing it during dry weather of all latent moisture. An important feature of Ferneries is that, when made and planted, very little labour is required to keep them in order. Annual top-dressings of decayed vegetable manure in spring, and periodical cleanings during the growing season, form the greater part of the necessary work. After a year or two of growth some of the commoner, normal forms may be weeded out and planted on the outer limits, giving the rarer forms room to develop. *A. P. C.*

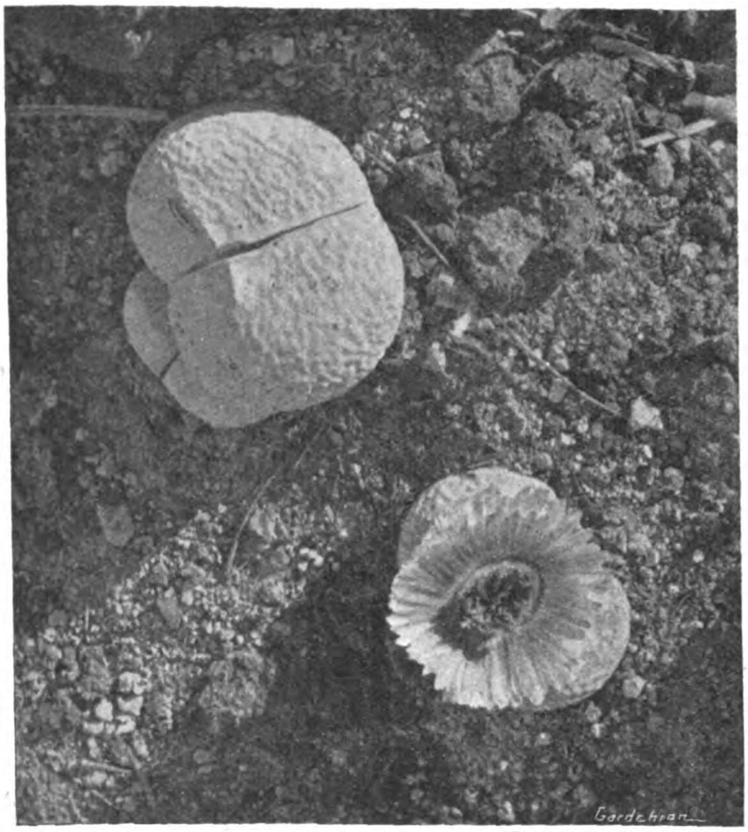

Photo by I. B. Pole-Evans.

FIG. 77. RIMARIA POLE-EVANSII, N. E. Br.

(see p. 156).

VIOLETS IN FRAMES.

To obtain Violets of the highest quality it is essential that the plants should have liberal treatment when growing in their summer quarters.

The ground should be dug deeply, especially for the strong-growing single varieties, and enriched with well-decayed stable manure and a dusting of wood-ash, adding a sprinkling of lime later. Land which has been trenched previously for Sweet Peas is especially suited to Violets. Partial shade during the hottest months is an advantage.

The plants which have been growing in frames may be divided during April, and the rooted runners planted at distances varying from eight inches apart for the double varieties, to fourteen inches for singles. If attention is given to watering, the runners will soon become established and grow freely. Subsequent treatment consists in watering during dry periods and syringing after hot days. The soil between the plants should be stirred frequently with the Dutch hoe. Restrict the plants to a single crown, removing all runners and side-shoots as they appear. By the middle of September the plants will have completed their growth and be ready for transferring to the frames. These should be raised above the surrounding ground level, face south, and be tilted in such a manner as will ensure the maximum amount of light reaching the plants during the winter. A frame having two lights, each measuring six feet by four feet, will hold about forty-two plants of the variety Princess of Wales, or almost double that number of Lady Hume Campbell or Marie Louise.

When planting, retain as much soil as possible about the roots, thus obviating a severe check to growth. As the work proceeds, work in among the plants some old potting soil to which has been added a four-inch potful of bone meal and double that quantity of wood-ash to each bushel of soil. The soil should be made firm and have a decided slope towards the front of the frame.

Water the plants, and unless the weather is very bright and hot, leave the lights off entirely for a week or two. When these are placed in position air should be admitted by tilting them at the back and removing them entirely during spells of fine weather. Covering material should be at hand when severe weather is expected. If the plants should become frozen they should be kept shaded to ensure the thawing process being gradual, or harm will result. Stable litter placed around the frame will assist in keeping out frost, which, however, will do no further harm than check the plants in their flowering if precautions are taken to prevent sudden thawing. It is sometimes necessary to keep the frames covered for a week or two during continued hard weather.

During December and January very little water will be required, but with the arrival of warmer weather the plants will require frequent attention in this matter. Any decaying foliage should be removed and the soil stirred occasionally. By the middle of February a light top-dressing will help to strengthen the plants. This may consist of a mixture of sifted soil, six parts, to one each of bone-meal and wood-ash, and be applied at the rate of a peck to each light.

For the successful cultivation of Violets in frames, the need of plenty of fresh air is almost universally recognised, but one or two small growers I know never open their lights after planting except to gather the flowers. *Charles Hodgson, Acton Place Gardens, Acton, Sudbury, Suffolk.*

PLANTS THAT HAVE SUFFERED FROM FROST AT LA MORTOLA.

RECENT books dealing with gardening in the Riviera have seemed to make light of the difficulties and place all successes to the credit of the climate. But even in this favoured spot it has been necessary to cover plants with canvas, paper, Palm leaves, straw mats and Pine branches, and to make smother fires to protect plants against frost, of which we experienced 13° on January 13. Gardens which relied solely on colour for their charm have suffered badly, but where, as at La Mortola, beauty of form in trees and shrubs has not been neglected, there is no lack of interest or of beauty. I append a list of plants that have suffered from frost at La Mortola, as it may serve to impress upon Riviera gardeners the need of occasional protection.

Acanthus arboreus and A. mollis; †Agave attenuata, †A. Bergeri, †A caespitosa, †A. densiflora, A. flaccifolia, A. geminiflora, †A. Ghiesbreghtii, A. sisalana, †A. Wercklei, and A. Wildingii; Ageratum mexicanum, Aloe affinis, A. arborescens frutescens, A. Brunnthaleri, A. ciliaris, A. Dyeri, A. ferox, A. lateritia, A. plicatilis, †A. Salm-Dyckiana, A. Simii, A. succotrina, and A. supralaevis; Anona Cherimolia, Argyreia speciosa, Arundo donax.

†Begonia fagifolia, †B. macrophylla, B. manicata, B. miniata, †B. semperflorens, B. Rex and *B. weltoniensis; †Bougainvillea glabra, †B. Sanderiana and †B. spectabilis; †Bouvardia coccinea, Brachychiton luridus, and Buddleia madagascariensis.

Calendula officinalis, Calodendrum capensis, Camellia japonica, Cantua buxifolia, *Carica Papaya, Casimiroa edulis, Celastrus arbutifolius, Cestrum aurantiacum, C. lanatum, and C. nocturnum; Chlorophytum elatum, Chrysanthemum frutescens, *Cineraria stellata, †Colocasia antiquorum, Colquhounia vestita, †Cordia Franciscii and C. serratifolia; †Crassula rosularis, †Cussonia triptera, Cyperus alternifolius and †C. Pepyrus; †Cyphomandra betacea.

†Dahlia Maximiliana, †Datura arborescens, †D. chlorantha and †D. sanguinea; †Dombeya Cayeuxii and †D. Wallichii; Draceana Draco, Dunalia cyanea.

Echeveria gibbiflora, E. imbricata and †E. multicaulis; Echium callithyrsum, E. fastuosum, E. formosum and E. giganteum; †Erythrina Crista-galli, E. insignis and E. viarum; Eucalyptus Globulus, E. leucoxylon, E. marginata, E. melliodora, E. rostrata, and E. Stuartiana; Euphorbia abyssinica, †E. balsamifera and E. Regis-Jubae.

†Ferdinanda eminens, †Ficus comosa, †F. laevigata, †F. macrophylla, †F. religiosa, and †F. Roxburghii; *Fuchsia arborescens and F. triphylla; Furcraea Selloa.

Genista monosperma, †Gynura aurantiaca, †Hebeclinium ianthinum and H. macrophyllum; Hedychium carneum and H. Gardnerianum; Heliotropium peruvianum, Hexacentris coccinea, Hibiscus Rosa-sinensis and H. splendens.

†Iochroma coccinea, †I. grandiflora and †I. lanceolatum; Ipomoea Leari.

Jacaranda ovalifolia, Jasminum officinale,

†Kalanchoe coccinea, †K. marmorata and †K. somaliensis; †Kleinia Grantii and †K. neriifolia.

Lantana Camara and L. lilacina.

Mackaya bella, Meryta macrophylla, Mesembryanthemum aequilaterale, M. multiflorum, M. rubricaule, M. serrulatum and M. verruculatum; †Monstera deliciosa, †Montanoa bipinnatifida and M. tomentosa; †Musa Basjoo, †M. Ensete and †M. paradisiaca.

Odina caffra, Olmediella Betschleriana.

Pelargonium anthamanthoides, P. hybridum, P. inquinans, P. lateripes, P.Radula, P. roseum, P. scandens, P. vitifolium and P. zonale; Phytolacca dioica, †Pilea microphylla, Pithecoctenium buccinatorium and P. muricatum; †Poinsettia pulcherrima, Pteris longifolia.

†Reinwardtia trigyna, †Reseda odorata, †Richardia africana, †Rosa Banksiae and others in variety.

†Salvia albocaerulea, S. amarissima, S. augustifolia, S. elegans, S. farinacea, S. Heeri, S. mentiens and †S. Sessei; Schefflera Stelzneriana, †Sempervivum arboreum, S. Berthelotianum, †S. canariense, S. chlorochrysum, S. cuneatum, S. decorum, S. giganteum, S. holochrysum, S. hybridum, S. mauriquorum, S. urbicum, S. velutinum, S. Webbii and S. Youngianum; Senecio angulatus, †S. grandifolius, †S. hadiensis and S. Petasitis; Solandra grandiflora, Solanum acanthocarpum, S. auriculatum, S. aviculare and S. cyananthum; †Sonchus Jacquinii, †Statice brassicaefolia, S. fruticans and †S. macrophylla; Strelitzia Augusta, *Streptosolen Jamesonii.

Tacsonia manicata, Tetrapanax papyrifera, †Tropaeolum majus.

Verbena officinalis, †Vitis quinquefolia and †V. voinieriana.

†Wigandia caracasana and †W. urens.

†Zebrina pendula and †Z. tricolor.

S. W. McLeod Braggins, Superintendent, La Mortola Gardens, Ventimiglia.

FORESTRY.

THE INFLUENCE OF PROLONGED DAYLIGHT IN THE VEGETATIVE SEASON ON THE QUALITY OF CONIFEROUS TIMBER GROWN AT HIGH LATITUDES.

(*Concluded from p.* 139).

IN Coniferous timber good quality depends not only on the absolute narrowness and uniformity of the annual wood rings, although this is of paramount importance, but also on the relative proportions of the thin-walled, comparatively weak, tissue of the spring wood, and the thick-walled, dense, strong tissue of the autumn wood, which together compose them. Pfeffer states that "nothing definite is known as to the causes which determine the anatomical differences between spring, summer, and autumn wood . . . the annual series of changes in the structure of the wood is the result of a complex correlative reaction, which we are not at present able to resolve into simpler factors."* Be this as it may, we know that when growth in thickness is rapid in Conifers there is generally a preponderance of spring wood, and in our British-grown Coniferous timber we find that, owing to mistaken ideas regarding its silvicultural treatment, this spring wood usually predominates in plantation timber. This is more especially true of the common Spruce, the silvicultural characteristics of which never seem in the past to have been properly understood, although it is a tree which, generally speaking, is well adapted to our insular conditions, but more especially to the more mountainous, western parts of the country, as isolated, untended stands occasionally show. Superior quality in Coniferous timber, then, primarily depends on the weak, spring wood being reduced to the lowest possible limit, and the strong autumn wood being relatively increased. This disposition of the wood elements can, of course, be controlled up to a certain point by the adoption of silvicultural methods which will tend to curb growth in spring by retarding its start as much as possible, and thus imitate nature's methods in high latitudes. But in low latitudes this has its limitations, and the great difference between the conditions as regards the duration of daylight in the growing season in this country and those of the great forest regions of Northern Europe precludes the possibility of our ever being able to produce the fine qualities of Coniferous timber, even when grown in the same way, which we import from these parts. We may take the data furnished by Mr. Farquharson to Dr. Hunter as being indicative of the rate of growth in girth of Scots Pine under natural conditions in the north of Scotland, but this compares unfavourably from the quality point of view with North Russian and Finnish samples, in which the number of wood rings to the inch is at least double what it is in the Invercauld sample. And as for Russian Larch, to try to produce a quality of this in Britain comparable to what we import from Archangel would be quite impossible. Like the Scots Pine, the Larch is a strong-light-demanding tree, and any attempt to grow it in sufficiently close forest here to produce as fine, close-grained timber as the imported material would meet with immediate disaster.

When we come to deal with the growth in girth of the trees forming these North Russian and Finnish forests, so far as the volume of timber goes it would seem to compare very unfavourably with plantation timber in this country. Mr. Farquharson stated in his communication to Dr. Hunter that the 214 years old, naturally-produced Pine which he measured, had a diameter corresponding to that of a planted Pine of fifty years of age, that is, at fifty years of age the naturally-grown tree would be about one-fourth of the diameter of a planted tree of the same age. He mentions that these self-sown trees were free from side-branches to a height of fifty to sixty feet before they acquired the diameter of a foot, but nothing is stated about the height of the planted trees. Now, assuming the diameter of the former to be only one-fourth of that of the latter at the same age, and that the height and form factors of both were approximately the same, the volume of the self-sown tree would be one-sixteenth of that of the planted one. But this would probably be a very unfair comparison, for if the diameter of the self-sown tree was two-and-a-half feet at the age of 214 years, it is more than probable that the trees which Mr. Farquharson refers to as being "free from side-branches of any size, to the height of fifty or sixty feet, before they acquire the diameter of a foot" would not only be taller, but would have a much better form factor than the planted trees at the age of fifty years. But at the age of fifty years there would also be a much greater number of stems on a given area in the case of the self-sown trees, and therefore the difference in the volume of timber per unit of area would not be much less, if actually less, than the difference between the volumes of individual self-sown and planted trees. However this may be, there can be no doubt whatever that the timber of these self-sown trees, of which some of the "master-trees" were four feet in diameter, and "fit for the finest deal board," must have been of very superior quality as compared with that of the planted trees, for there is a vast difference from this point of view between fifteen annual rings to the inch, as we have in the self-sown tree measured by Mr. Farquharson, and ten rings to three inches, as we have in the planted one grown on the same ground, with, no doubt, also a much larger proportion of weak spring wood in the latter. Moreover, in his statement that the self-sown trees were "straight, and free from side branches of any size," and that when "the master-trees acquire some space around them, then they begin to shoot out in a more bushy manner at the top, gradually losing their spiral form, increasing afterwards more in size of body than height," not only have we in this dissertation of Mr. Farquharson's evidence of the production of fine, clean timber, but a lucid exposition of some of the soundest principles of silvicultural science, such as one might expect to find in the most up-to-date works on the subject at the present day.

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* Plants killed. † Foliage ruined.

* *The Physiology of Plants*, Vol. II., p. 215.

RESUMÉ.

The higher the latitude, the weaker is the intensity of the sunlight and the shorter the season of growth, and correlated with this falling off in the intensity of the solar radiation there is a progressive descent from the luxuriant vegetation of the tropical zone to a state of *nanism* at the highest latitudes at which the seed-bearing plants occur. The phenomenon of *nanism* is, of course, also met with at high altitudes in the tropical zone, where the atmosphere is much attenuated, and where the sunlight is at its greatest intensity, for, as Warming points out, "intense light by day and cold by night co-operate at high altitudes in retarding growth; prolonged, though weaker, light and lower temperatures in Polar lands have the same effect." But there is a vast difference in the circumstances which bring about *nanism* in these two regions. In the tropical zone the daily duration of the intense sunlight, which contributes so much to the production of *nanism* at high altitudes, varies but little at any season, hence growth is practically continuous all the year round. At the Polar limits of plant life, on the other hand, the whole of the annual supply of sunlight is received in the summer half of the year, and such a large proportion of this is required to melt the snow and ice which have accumulated in the long winter season, as well as to raise the temperature of the soil sufficiently to enable plants to function, that the growing season is restricted to a very short period. But this retardation of growth is one of the most important factors in the production of high quality in the Coniferous timber which comes from these high latitudes, for the excessive development of weak "spring" wood, so common in inferior qualities of Coniferous timber, is thereby prevented, and the production of dense, strong "autumn" wood is encouraged.

But in the growing season at these high latitudes, the chemical intensity of the sunlight is very substantially increased over what it was at the vernal equinox, and thus the heat requirements of the plants are met, or more than met, while their light requirements are greatly over provided for. When the *optimum* light requirements of a species are met, any increase over this amount is of no further advantage to it, and the excess can only be utilised by an increase in the number of individuals. And this is what we find in these naturally-reproduced Coniferous forests, where Nature makes provision for the utilisation of this excess of sunlight by providing a superabundance of seedling plants, and allowing them to contend among themselves for this sunlight, and to settle the question of the survival of the fittest among them in their own way. It is in such circumstances as these that, in Finland, in the neighbourhood of the arctic circle, where the chemical intensity of the solar rays is comparatively low, but where the daylight at the middle of the growing season is practically of perpetual duration, according to M. Frederiksen, the "long, healthy pines, as straight as the most perfect columns," are found. And if proof that the surplus sunlight received in these high latitudes in the growing season is used in this way were required, one has only to point to the timber of the Archangel Larch, which is imported into this country, to furnish it. For, as has been mentioned, to attempt to grow a light-demanding tree like the Larch in this country in sufficiently close formation to produce narrow-ringed timber of this sort would be impossible.

At the latitude of 64° N., which practically bisects the great forest region of Finland and Northern Russia, the duration of the daylight at the middle of the growing season is approximately as 4 to 3 at the latitude of Edinburgh (56°), and 3 to 2 at the latitude of London (51½°). Assuming the light requirements of the species to be constant for all latitudes, this means that approximately one-third more stems could be accommodated on a given area at the latitude of 64° than at 56°, and one-half more than at 51½°.

The mainland of Great Britain lies between the latitudes of approximately 50° and 58½° N., and the difference in the duration of the daylight at the middle of the growing season at the extreme north and south ends of the island is about two hours daily. The effect of this upon the quality of Coniferous timber, provided it is grown under similar, and proper, silvicultural methods, must be appreciable, and points to the conclusion that the northern part of the island is better adapted to the production of Coniferous timber of good quality than the southern part. It would, however, be impossible under any circumstances to produce in this country, even in the north of Scotland, Coniferous timber of a quality equal to that which is produced in Finland and Northern Russia. *A. D. Richardson, Edinburgh.*

ORIGIN, EARLY HISTORY AND DEVELOPMENT OF THE POTATO.

(*Continued from page* 120.)

INTRODUCTION INTO OTHER COUNTRIES.

While in a book published in Italy in 1584 no mention is made of the Potato, we know from Clusius that it was taken from Italy by the Papal delegates to Belgium, where some tubers were received by Philipp de Sivry, Prefect of Mons, who, in 1588, sent two tubers to Clusius in Vienna. Clusius, in turn, sent specimens to various botanic gardens in Germany. Bauhin grew Potatos at Basle, Switzerland, in 1596, and from there the Potato passed into France. The first mention of it in French literature is in 1600 by Oliver de Serres in his *Théâter d' Agriculture et Mesnage des Champs.* According to Krichauff, the Potato was first placed on the royal table of France in 1616. In Germany the Potato made much more rapid progress than in France. Sweden was late in adopting the Potato. In India it would appear to have been grown during the governor-generalship of Warren Hastings (1772-1785). With regard to North America, the evidence is that the Potato was unknown to American agriculture either in the sixteenth or seventeenth centuries, and that it was not until the early part of the eighteenth century that it was first introduced. According to Bailey,[*] the tuber was not brought into cultivation in New England until the arrival of the Presbyterian immigrants from Ireland in 1718. In all countries there appears to have been strong opposition to the introduction of the Potato; some objected to it on account of its presumed harmful effect on the mind, and others because it was not mentioned in the Bible! Frederick the Great of Prussia and his father found it necessary to use compulsion to secure its growth, but although the royal decrees had their effect, it was the famine caused by the Silesian wars, especially the Seven Year's War, which established Potato culture in Prussia. In Russia, the prejudice was so strong that the tubers were referred to by peasants as the "Devil's Apples.[*]" In France, also, the Potato was at first regarded with no favour; in fact, it was commonly spoken of in that country as food fit only for animals and poor people. It was Parmentier, an apothecary, who really introduced the cultivation of the Potato into France, and it was not until his time that the prejudice was removed. Parmentier was a prisoner of war in Germany during the Seven Years' War: during his confinement he was fed on Potatos and learned to like them. In 1771,[†] a high prize was offered by the Academy of Besançon for the discovery of a new food which would fill the place of cereals in time of famine. In the succeeding year Parmentier presented to this academy his celebrated memorandum on the culture of the Potato.[‡] Louis XVI gave him fifty morgen of land to plant them on. When showing the first flowers of his Potatos on August 25, 1785, the king used them as a buttonhole bouquet, Queen Marie Antoinette had them in the evening in her hair, and at once princes, dukes and high functionaries went to Parmentier for such flowers. All Paris talked of nothing but Potatos and the cultivator of them.

EARLY HISTORY IN BRITAIN.

According to Sir Joseph Banks, Sir Robert Southwell, president of the Royal Society, informed the members of the Society at a meeting on December 13, 1693, that his grandfather introduced the Potato into Ireland, having obtained it from Sir Walter Raleigh. It would appear, therefore, as practically certain that the entry into Ireland took place very shortly after the Potato had been brought to England. Louden[§] states that the Potato was first planted by Sir Walter Raleigh in his estate of Youghall, near Cork, Ireland, and was, according to Gough in his edition of *Camden's Britannia*, 'cherished and cultivated' for food in that country before its value was known in England. Gerard planted Potatos in his garden in 1596, but he recommended them as a delicate dish and not for common food. It is stated that, owing to ignorance, when the Potato was first cultivated in Ireland, the fruit, *i.e.*, the berry, was regarded as the edible portion of the plant. It is reported in *The Gardeners' Chronicle*, 1882, that Sir Walter Raleigh's gardener, annoyed at the unpleasant taste of the berries, complained bitterly and asserted that the plant was not worth a place in his garden. However, when he proceeded to dig it out, he found the tubers concerning the merits of which he soon became acquainted. A similar story concerning some of Sir Francis Drake's friends appears in the volume for 1874.

For a long time, Potatos remained a dainty in Britain, and in a written book[||] for housekeeping kept by Queen Anne, wife of James I (1603-25), it is stated that a small quantity of Potatos were purchased at 2/- per pound. The Government, tried to push the cultivation of the Potato in 1663, but progress was very slow. Potatos are mentioned by John Reid in *The Scots Gardner*, Edinburgh, 1683, from which the following quotation is taken:—"Potatos being cut in as many pieces as you please, provided there be an eye to each piece, must be planted in March, five rows in a bed; plant not deep, neither in wet or stiff ground." In 1699, Evelyn recommended growers to plant

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[*] L. H. Bailey; *Cyclopaedia of Agriculture*, 1912.

[*] *The Gardeners' Chronicle*. October 21, 1882.

[†] Krichauff; *Journal Roy. Hort. Soc.*, 1895, Vol. XIX.

[‡] *Encyclopédia Agricole*. H. Hitier, Paris, 1916. Plantes Sarclées. "Pomme de Terre."

[§] *Encyclopaedia of Agriculture*, J. C. Louden, 1825.

[||] Krichauff, *Journal Roy. Hort. Soc.*, Vol. XIX, 1895.

Potatos in their worst ground. It is a noteworthy fact that in English books on gardening of the year 1719, as in that by the famous nurserymen, London and Wise, the Potato is not even mentioned, and Bradley, who wrote extensively on horticultural subjects about the same time, speaks of them as inferior to Skirrets and Radishes. Only later in the eighteenth century did the Potato become better known and cultivated in Great Britain. According to Krichauff, they were chiefly found in the gardens of peers and rich men up to about 1784. However, Bradley in his *Complete Body of Husbandry*, published in 1727, recommends Potatos to follow Carrots and Onions in field culture, and it is to be assumed, therefore, that field culture was in vogue in England during the first quarter of the century, although perhaps to no great extent. In *Chambers' Cyclopaedia*, (1781), it is mentioned that the cultivation had been general for the "past forty or fifty years." *T. P. McIntosh.*

(To be concluded).

VEGETABLE GARDEN.

THE CULTIVATION OF THE PARSNIP.

THOUGH the Parsnip is not difficult to cultivate a fair amount of care is necessary if the crop is to be a success. It needs a rich soil, though not one which has been enriched with farmyard manure during the current season, for fresh farmyard dung predisposes the roots to forking.

I find it good practice to sow Parsnips on the site of an old Onion bed, Celery or Leek trenches. The only preliminary treatment given is to dig the soil thoroughly to the depth of one foot. Naturally, the time of sowing will vary in accordance with the situation of the garden. Here, in the south, we sow as near to the first week in March as the ground is fit for the reception of the seeds. I have sown earlier than that but never gained anything by it. In a garden in the north I used to sow Parsnips so soon after the third week in March as possible.

Drills should be drawn one-inch-and-a-half deep and fifteen inches apart, and the seeds should be scattered thinly in them. One ounce of seed will sow a row forty feet in length. When the seedlings are three inches tall they should be thinned to a distance of twelve inches apart. I feel it a duty to stress the importance of timely thinning, for if the seedlings are allowed to become overcrowded, no amount of after care will ensure the crop being a success.

The only cultural attention necessary until the crop is half-grown consists in the diligent use of the Dutch hoe, which conserves moisture, destroys weeds and aerates the soil. Feeding with concentrated fertilisers may be commenced at the stage mentioned, when stimulants may be applied once a week until signs of maturity appear in autumn.

Of the many fertilisers tried, I find none give better results than a mixture of superphosphate four parts, sulphate of ammonia one part, and sulphate of potash one part. These substances should be mixed and applied at the rate of half-an-ounce per plant. If the weather is dry, the fertiliser should be watered into the soil.

To secure fine Parsnips for exhibition holes should be bored six inches in diameter and two to three feet in depth and filled with a mixture of equal parts loam, leaf-mould and sand, riddled through a half-inch sieve. Five or six seeds are deposited in each station and the seedlings thinned to one. Obviously this system involves much labour and for the ordinary crop can only be justified when the natural soil conditions are otherwise unsuited to Parsnips.

It is recognised by capable judges that the flavour of Parsnips is improved by the action of frost; therefore, the crop, as a whole, need not be lifted until required for the table. It is, however, well to have a few roots lifted in reserve, in case frost makes the soil too hard for lifting. With regard to varieties Jersey Marrow, Student and Hollow Crown are reliable sorts. *Geo. F. Copley, N.D.H.*

HOME CORRESPONDENCE.

[The Editors do not hold themselves responsible for the opinions expressed by correspondents].

Aucuba japonica variegata.—Apropos of the discussion on Aucubas, I may relate an interesting story of 1870, told to me by the late Mr. Walter Povey, for many years salesman at Coombe Wood Nursery. When the male plant was introduced to Messrs. J. Veitch and Son's Coombe Wood Nursery Mr. Povey, then a small boy in the nursery, was sent with a small brush and a little of the Aucuba pollen to pollenate the flowers of a large bush of Aucuba japonica growing on the lawn of a gentleman's house at Kingston Hill. The next spring that gentleman sent for young Povey, who thought he was in for a scolding; instead the gentleman took him by the hand, gave him a sovereign and showed him his old variegated Laurel covered with red berries from top to bottom. I should imagine the first male plant had green foliage. Since then there have been quantities of the plants raised from seeds, and there are now both variegated and green forms of both sexes, some with long leaves, some short, some strong-growing and others dwarf. I have always found male and female plants to be distinct, one producing pollen and the other berries. *Alfred Astley, Ottershaw Nurseries, Chertsey.*

——Having noticed the discussion that has taken place between Mr. H. Copley and Mr. Comber on the fruiting of Aucuba japonica, I may observe that our plants of Aucuba japonica variegata are fruiting very freely, and I send a few sprays for the Editors' inspection. These I picked at random, as I had no idea there were so many berries on the plants until a few days ago, when we were cutting evergreen for decoration. *W. Leith, Clyne Castle Gardens, Swansea.*

Daphne Laureola.—I was very surprised to see in *The Gardeners' Chronicle* that my specimens of Daphne Laureola lost their fragrance *en route* to your office. All six pieces were fragrant when packed. All my bushes are scenting the air round them at whatever time I go, and I have noticed people stopping in our drive as if wondering where the sweetness came from, and then go across to the bushes and put their heads down to smell the flowers. Since sending the specimens I gathered others; I brought them into a warm sitting room where they retained their fragrance for a full week. I notice, however, that the cut stem emits a somewhat disagreeable smell which counteracts the delicate scent of the blooms until the cut ends are put under water, when, of course, it is not perceived. Perhaps the sooty atmosphere in and around London neutralises the scent but I should fancy your Ealing correspondent's bush was hardly fully out, as this is a late year and my plants were not fully out until February 1. *K. M. Hinchliff, Instow.*

Dombeyas.—The recent notes and illustrations of plants of this genus in *The Gardeners Chronicle* have brought to my memory the species of Dombeya which are common in tropical Africa. The most attractive of them all is Dombeya Mukole, a large forest tree, which at certain seasons is covered with its beautiful white blossoms. In places this tree is abundant, and presents a beautiful picture when seen from a hilltop and looking over the forest roof. It provides a very good timber. A shrubby species, very similar in habit to the one figured on page 99 (February 6), is known as D. Dawei. Its flowers are white or a very pale pink. It is of some importance, locally, as a fibre plant. The bark of young growths contains a considerable proportion of very strong fibre. Its general associates are Triumfetta macrophylla and Honckenya ficifolia, both excellent fibre plants. When it is mentioned that thin strips of bark from either of these shrubs are strong enough to use to tie the rafters on a house, a purpose for which they are always used, it will be gathered that they are of considerable local value, and may, some day, be more widely used. A native collecting bark for use in binding will gather from the three plants indiscriminately, all being considered of equal value. *E. Brown, Hillside, Doddington, Sittingbourne, Kent.*

Carnation Baroness de Brinsen.—Having grown this variety of Carnation since it was introduced, I was sorry to read that some growers are discarding it. If the last stopping of the plants is done in May they would find it quite a different plant, producing its glorious flowers all through the winter as freely as any other Perpetual-flowering Carnation. *J. P.*

White Fly.—I have known White Fly as a pest in greenhouses and on plants out-of-doors for some twenty-five years. From my experience tetrachlorethane is not more effective in keeping it in check than vaporising with nicotine, and is much more injurious to plants, in fact, some plants will not withstand it at all. When nicotine vaporising compound could be bought at 12s. 6d. a quart, I used it about three times within ten days or a fortnight: and every morning after fumigating, before the flies had time to rise off the floor, I thoroughly soaked them with water or a soapy insecticide. This treatment kept the houses clean for a long time. I tried the same method with tetrachlorethane and ruined a whole batch of Cucumber plants, practically killed another of Jacobeas, and scorched the leaves of many other plants. It is not always convenient to dip plants, especially when they are in flower, otherwise this is the most effective method of getting rid of the fly and eggs at the same time. Mr. P. Meyer, on page 35, vol. LXXIX, states that he sprays with XL All insecticide, which is also effective if thoroughly performed, but at the first shake the fly will rise and alight on something else and thus escape. In some years all the undersides of the leaves of out-door green crops are literally smothered with the fly, but last year, for no apparent reason, the out door crops were comparatively clear of the pest, compared with what they had been in former years. The White Fly lives and lays its eggs on the common Nettle and wild Cress. *Grigor Roy.*

Romneya Coulteri.—I read with much interest the three letters on the above plant, pages 68 and 69, and from them I deduce the fact that some investigation into the habits, under differing conditions of soil and climate, is still necessary with regard to both R. Coulteri and R. trichocalyx, and I will be most happy to lend any assistance I can, such as the exchange of specimens, either foliage, flowers or even young plants raised from root cuttings, in due season. The very fact, which comes out prominently in two of these letters, that both species died out with *C. M. B.* (Isle of Wight), while with Mr. George Wyatt, Northernhay, Huntingdon, R. Coulteri became a nuisance, necessitating the tearing up of the foundations of a path to get rid of it, shows the utmost extremes of growths and is exceedingly interesting. Regarding the age of plants referred to by Mr. A. T. Johnson, I can only repeat that our plants are probably twenty to twenty-five years old, and have never produced a single sucker. *A. T. Harrison.*

Slugs and Zinc Rings.—I thank Mr. Arnott for his kind appreciation of my note on the "Use of Zinc Rings for the protection of plants from slugs," also for drawing attention to a point which I missed: *i.e.*, the manner of joining the ends of the zinc together to form a perfect ring. If the last tongue at each end is allowed to stand upright and the ends of the zinc strips are bent sharply back in opposite directions, these can be interlocked and will form a joint as effective as soldering, and with the distinct advantage that a separation may be effected easily, and the zinc strips stored flat when not in use. We cut our zinc into two standard lengths: for alpines, eighteen inches long, to form a ring about five-and-a-half inches in diameter; and for herbaceous plants, two feet long forming a ring eleven inches in diameter. If larger rings are required, these may be readily formed by clipping two or more of the strips together by means of the interlocking ends. *F. C. Puddle, Bodnant Gardens, Taly-Cafn.*

SOCIETIES.

ROYAL HORTICULTURAL.

February 23.—Spring flowers were responsible for much of the beauty and brightness of the display at the Royal Horticultural Society's Hall on Tuesday last. Daffodils, Crocuses and Tulips attracted general attention, but not less interesting were the alpine plants and early flowering shrubs, while Cinerarias, Cyclamens, Orchids, Carnations and Roses were all well represented.

Orchid Committee.

Present: Mr. C. J. Lucas (in the chair), Mr. Gurney Wilson (Hon. Sec.), Sir George Holford, Mr. R. Brooman White, Mr. A. T. Pitt, Mr. Fred J. Hanbury, Mr. Arthur Dye, Mr. J. E. Shill, Mr. H. G. Alexander, Mr. Charles H. Curtis, Mr. Fred K. Sander, Mr. John C. Cowan, Mr. Sidney W. Flory, Mr. Henry H. Smith, Mr. T. Armstrong and Mr. E. R. Ashton.

First-Class Certificate.

Miltonia Lycaena, Stamperland var. (*M. Princess Margaret* × *M. Lord Lambourne*).—A superb Orchid with flowers of wonderful size and beauty. It differs from the original in being heavily shaded with crimson in place of the rose-purple of the type. Shown by Robt. Paterson, Esq., Stamperland, Cathcart, Glasgow.

Awards of Merit.

Cymbidium Flamingo var. rotundiflorum (*Alexanderi* × *Merlin*).—A very rounded flower of excellent substance. It is scarcely so large as the type, but is of lovely pink colour with chocolate-red markings on the apical portion of the lip. Shown by Sir George Holford (gr. Mr. H. G. Alexander), Westonbirt, Tetbury.

Odontoglossum citrinum var. Prince of Orange (*eximium xanthotes* × *Boadicea*).—This charming hybrid has rounded flowers of medium size and these have a cream-white ground, shading to yellow at the ends of the sepals and petals, the yellow colouring being enhanced by light orange-yellow blotches on each of the segments, including the lip. Shown by Messrs. Charlesworth and Co.

Vuylstekeara Melba (*Vuylstekeara Brewii* × *Odontoglossum Gorizia*).—In this hybrid the flowers are of large size. The sepals and petals are of a rich plum-purple colour, with a reddish overlay or sheen; the wide lip is softer purple, with the red colouring shown in veins and at the base. Shown by Messrs. Charlesworth and Co.

Brasso-Laelio-Cattleya Nigeria (*B.-L.-C. pulcherrima* × *C. Warscewiczii*).—A handsome and large-flowered hybrid with broad petals of a deep purplish-rose colour. The big lip is of similar colour, with purple markings at the fringed apex, and a light orange, brown-based centre. Shown by Messrs. Charlesworth and Co.

Groups.

Messrs. Sanders had a bold exhibit wherein Cymbidiums and Oncidiums were prominent features. The former were represented by C. Pauwelsii, C. Moonlight, C. Moonbeam, C. Erica Sander, C. Louis Sander var. Aurora—a lovely deep rose-coloured form, and a fine specimen of C. Moira, the pale yellowish cross between C. Pauwelsii and C. Tracyanum. Oncidium Cavendishianum was represented by two large plants. Other good things were Phalaenopsis Schilleriana var. Vivid, Bletia hyacinthina, Odontioda Grenadier, Dendrobium macrophyllum, Restrepia striata and Cirrhopetalum picturatum.

In Mr. Harry Dixon's group we noted such interesting plants as Dendrobium Melpomene, Oncidium cheirophorum, Odontoglossum Crawshayanum, Epidendrum polybulbon and Cypripedium Milky Way. Messrs. J. and A. McBean exhibited the beautiful Cattleya Cowaniae alba, C. Eunice alba, Laelio-Cattleya Arcturus, and several Cymbidiums.

A fine display of Orchids from Messrs. Charlesworth and Co. was greatly admired and many of the plants were particularly fine ones. Miltonia Wm. Pitt, carrying six flowers was especially good, and Odontoglossum Tityus with nearly thirty flowers was another attraction. Dendrobium thyrsiflorum, Cymbidium Butterfly, Odontoglossum Zulu, Sophro-Laelio-Cattleya His Majesty, Cattleya Dionysius, Brasso-Laelio-Cattleya Joan, and several hybrid Odontoglossums were other noticeable plants in a very effective exhibit.

Cattleya Enid alba with four big blooms was conspicuously beautiful in Messrs. Cowan and Co.'s group and around this were displayed Brasso-Cattleya British Queen, of which this firm appear to have a perennial supply, Cattleya Linda, C. Octave Doin, Cypripedium microchilum, C. J. M. Black, and the handsome C. Hassellii St. Mary's var. with deep rose dorsal sepal.

Messrs. Stuart Low and Co. made a comparatively small contribution of Orchids but their exhibit included many pleasing examples, notably Sophro-Laelia Psyche, Dendrobium Chessingtonense var. J. M. Black, Laelio-Cattleya Arcturus with four brilliant blooms, the large-flowered Cymbidium Lady Colman, the finely formed Laelio-Cattleya General Maude, Low's var., Brasso-Cattleya Maroniae, B.-C. Leemaniae, and Odontoglossum scintillans, carrying its seven flowers just as freshly as a fortnight previously.

Messrs. Black and Flory had a bright display and Cypripediums were their leading feature. Of these a few of the best were C. Robert Paterson, of fine colour and size; C. Odin, C. Warrior, C. Golden Sunset and C. Golden Wren. We also noted good examples of Odontiodas and Cattleyas.

Floral Committee.

Present: Section A.—Mr. H. B. May (in the Chair), Mr. J. F. McLeod, Mr. Arthur Turner, Mr. H. J. Jones, Mrs. E. M. Wightman, Mrs. Helen Lindsay Smith, Lady Beatrix Stanley, Mr. M. Fenwick, Mr. E. R. Janes, Mr. J. M. Bridgeford, Mr. M. C. Allwood, Mr. Donald Allan, Mr. F. Streeter, Mr. W. H. Page, Mr. D. Ingamells, Mr. A. Vasey, Mr. J. T. West, Mr. D. B. Crane, Mr. Wm. Howe, Mr. W. B. Gingell, Mr. Jas. B. Riding, Mr. H. R. Darlington, and Mr. Chas. E. Pearson.

Section B.—Mr. Chas. T. Musgrave, (in the Chair), Mr. W. J. Bean, Mr. James Hudson, Mr. G. Reuthe, Mr. Geo. Harrow, Mr. Reginald Cory, Mr. C. Williams, Mr. L. R. Russell, Mr. E. H. Wilding, Mr. G. Yeld, Mr. F. G. Preston, Mr. T. Hay, Mr. Clarence Elliott, Mr. E. A. Bowles, and Sir William Lawrence.

First-Class Certificate.

Crocus Sieberi versicolor major.—A handsome form of the well-known spring-flowering Crocus. The flowers are larger than those of the type. The outer segments are heavily flushed with chocolate except for a narrow, feathered bar of white near the tips. The pure white interior of the flower is relieved by a glowing orange shade at the base. The leaves are short and exceptionally narrow. Shown by E. A. Bowles, Esq., Myddelton House, Waltham Cross.

Awards of Merit.

Cyrtanthus O'Brienii.—This elegant South African bulbous plant was introduced in 1894 and is generally considered to be intermediate between C. angustifolius and C. Macowanii. It bears an umbel of eight or more tubular flowers on slender, erect stems about a foot in height. The flowers, which are two inches long, are of rosy-salmon colour. The small, fresh, green, linear leaves appear at the same time as the flower scapes. Shown by Sir William Lawrence, Bt., Burford Lodge, Dorking.

Primula Allionii alba.—This is an uncommon variety of the mauve-coloured species which is found in the mountains north of Mentone. A compact, almost tufted little plant, with spathulate foliage nearly simulating that of a vigorous Arabis, was shown, and it had four solitary, short-stemmed flowers of almost paper whiteness. These blooms were about three-quarters-of-an-inch across and all were pin-eyed. Shown by Mr. Clarence Elliott.

Rhododendron Nobleanum album, Gill's variety.—A handsome truss made up of large, pure white flowers which have just a touch of pale lemon colouring towards the base of the lower segments. The leaves are relatively small and narrow. Shown by Messrs. R. Gill and Son.

Saxifraga Riverslea.—A crusted Saxifrage of fairly vigorous habit and bearing plenty of long-stemmed purple flowers, usually in pairs. Shown by Messrs. M. Prichard and Sons.

Viburnum fragrans candidissimum.—This is an erect-growing miniature, deciduous variety which has small compact trusses of milk white, sweetly scented flowers. Shown by Sir William Lawrence, Bt.

Groups.

A magnificent group of greenhouse Cyclamens was arranged with conspicuous skill and taste by Messrs. Sutton and Sons on a considerable space against the end of the hall When viewed from the Orchid annexe the colour effect of the many mounds of plants in distinct shades of colour was vividly arresting. The various mounds of plants were set in a cool and effective groundwork of dwarf Ferns and moss. The many plants were shown under their colour names and illustrated a splendid strain as well as the highest degree of cultural skill.

On a table space there was a decorative collection of greenhouse Cyclamens from the Napsbury Mental Institution (gr. Mr. W J. Jennings), St. Albans. This good strain of valuable plants is the result of selection continued for a number of years at Napsbury by Mr. Jennings.

Good collections of Carnations were staged by Mr. C. Engelmann, Messrs. Allwood Bros. and Messrs. Stuart Low and Co. The last named included such good varieties as Violet Mond, Philip Sassoon, White Pearl, and Lady Inverforth. Adjoining the Carnations they had well-flowered bushes of Mimosas (Acacias). Edward Allwood, Laddie, Supreme and Mary Allwood were prominent varieties shown by Messrs. Allwood Bros., while Mr. Engelmann set up handsome vases of Topsy, Tarzan, Laddie and Benora with many other useful varieties.

Exceptionally well-flowered sprays of yellow Banksian and of Fortune's Yellow Roses were artistically displayed by Mr. George Prince who also showed goodly vases of Madame Butterfly and other varieties. Mr. Elisha J. Hicks included beautiful vases of Coral Cluster, Climbing Lady Hillingdon, Mrs. Herbert Stevens and Chas. E. Shea in a valuable group of Roses.

An excellent collection of large flowered Cinerarias was arranged by Messrs. Dobbie and Co. These were splendidly grown plants of a first-rate strain which produces large blooms of beautiful colours.

A graceful group of forced shrubs was displayed by Messrs. L. R. Russell, Ltd., who made good use of well-flowered Wistarias, Pyruses, Azalea mollis, A. indica varieties, and also showed large-flowered Hippeastrums. Various Conifers, suitable for the rock garden, Ericas and other shrubs were shown by Messrs. R. Wallace and Co.

An interesting collection of Rhododendrons exhibited by Messrs. R. Gill and Son included R. argentea, R. ciliicalyx, R. lutescens and brilliant blooms of R. Cornubia. They also showed a large number of flowers of their vigorous strain of St. Brigid Anemones. In his customary group of uncommon plants Mr. G Reuthe showed sprays and plants of several rare Conifers; Andromeda japonica, various Rhododendrons, and an interesting collection of alpines.

In a boldly-arranged sandstone rock garden Messrs. Wm. Cutbush and Son displayed many Azaleas, chiefly of the Mollis type, Pyrus floribunda, and other spring-flowering shrubs, while on the lower levels they planted Iris reticulata, Crocuses, Scillas, and other appropriate subjects. A neat rock garden built by Mr. F. G. Wood provided fitting places for various alpines, including Saxifrages, Primulas, and Muscari, with a few Daffodils. Primulas, Scillas, Saxifrages and Crocuses in pots were shown by Messrs. J. Cheal and Sons.

The graceful yellow flowers of Erythronium americanum were prominent in the well-arranged exhibit of Messrs. WATERER, SONS AND CRISP, who also showed Narcissus minimus, Iris stylosa, I. sind-pers, I. lilacina, and a few Rhododendrons. Messrs. SKELTON AND KIRBY staged Forsythias, Ericas, and Saxifragas. A large collection of Caen Anemones of good bright colours and a few Daffodils were set up by Mr. J. W. BARR.

The Rev. H. A. MEYER, Watton-at-Stowe, again contributed a large number of flowers of Iris stylosa and I. Cantab, with a background of Viburnum fragrans. Various rock garden plants and Conifers were shown by Messrs. SHEPPARDS, LTD., while Mr. GAVIN JONES staged Saxifrages and other alpines. Saxifraga oppositifolia splendens, S. Faldonside, and other good varieties, with Irises and Conifers, were well arranged by Mr. CLARENCE ELLIOTT. Mr. H. HEMSLEY staged well-flowered specimens of Cornus Mas, Grevillea rosmarinifolia, and alpines. Soldanella alpina, S. Sanderi, Saxifraga Irvingii, S. Burseriana sulphurea, S. B. speciosa, and S. kewensis were included in their exhibit by Messrs. R. TUCKER AND SONS.

An admirable collection of alpines in pots and pans was exhibited by C. G. KIRCH, Esq. (gr. Mr. J. Wall), Edenhall, Beckenham. Amongst the many good plants there were excellent examples of Saxifraga Grisebachii Wisley var. × Frederici-Augusti, S. Faldonside, S. Arco-Valley, S. Jenkinsii, S. Russell V. Prichard, S. Buseriana sulphurea, S. Riverslea and S. oppositifolia splendens. Messrs. M. PRICHARD AND SONS displayed in a neat rockery various Saxifrages, Anemone fulgens var., Primula capitata and Ericas. Messrs. W. H. ROGERS AND SON included Soldanellas, Primulas, Saxifragas and sprays of Grevillea sulphurea, with other spring-flowering plants. The Misses HOPKINS had an attractive little rockery with appropriate plants.

About a dozen lovely, soft-pink coloured flowers of Paeonia Moutan, rising above Lily of the Valley set in moss, were shown by H. J. TALBOT, Esq. (gr. Mr. E. Pinnock), Swakeleys, Ickenham, Uxbridge. Mr. J. J. KETTLE had a collection of large flowered Violets of delightful fragrance.

Just inside the entrance Messrs. JAS. CARTER AND CO. had a most delightful spring garden. In fresh green grass of enviable evenness and freedom from weeds they planted artistic sweeps of purple and striped and white Crocuses which spread from the level lawn up the slope amongst the Ericas and dwarf Conifers which made a fitting background to this wholly satisfying and artistic exhibit.

Narcissus and Tulip Committee.

Present: Mr. E. A. Bowles (in the chair), Mrs. Brodie, Miss E. Willmott, Mr. G. W. Leak, Mr. C. C. Titchmarsh, Mr. Chas. H. Curtis, Mr. C. W. Needham, Mr. Jan de Graaff, Mr. Alfred W. White, Mr. Geo. Churcher, Mr. J. W. Jones, Mr. P. R. Barr, Mr. Herbert Smith, Mr. F. Herbert Chapman and Mr. Reginald Cory.

AWARD OF MERIT.

Narcissus Cheerfulness.—A Poetaz variety, and quite distinct, inasmuch as it is a double sport from the popular Elvira. The flowers are of good size and rounded form, and borne in fair-sized clusters. The perianth is creamy white and the centre, composed of small petaloid stamens, is cream-coloured with a surrounding yellow, but broken, corona. We believe this variety originated as a sport with Messrs. Van der Schoot. Shown by Mr. J. W. BARR, Wimborne.

GROUPS.

A considerable space was filled by Messrs. R. H. BATH, LTD., with an imposing exhibit of spring bulbs growing in pans and bowls of fibre. The principal kinds used were Hyacinths, Tulips, Narcissus, Crocuses and Fritillaria Meleagris. The plants were all well grown and the general effect was excellent.

Messrs. BARR AND SONS staged a number of blooms of Narcissus. The very best were of the Trumpet and Barrii sections shown under their seedling numbers. But they also staged beautiful vases of Spring Glory, bicolor Trumpet; February Gold, rich yellow Trumpet; Maximus, yellow Trumpet; with Croesus and Village Beauty with vividly-coloured coronas. Adjoining the Narcissi Messrs. BARR AND SONS had a charming collection of spring-flowering shrubs, with Irises, Lily-of-the-Valley, Anemones and Saxifrages.

Fruit and Vegetable Committee,

Present: Mr. J. Cheal (in the chair), Mr. W. Poupart, Mr. P. C. M. Veitch, Mr. Geo. F. Tinley, Mr. W. Lobjoit, Mr. A. Bullock, Mr. A. E. Newby, Mr. W. F. Giles, Mr. E. Harris, Mr. E. Neal, Mr. G. Woodward, Mr. A. Metcalfe, Mr. E. Beckett, Mr. J. Wilson, Mr. W. H. Divers, and Mr John Basham.

Messrs. GEORGE BUNYARD AND CO., LTD., showed a collection of 126 varieties of Apples, all in excellent condition and representative of most of the best sorts in season. The fruits were all splendid samples of their kind, the more notable being Crawley Reinette, Ontario, High Green Blenheim, Histon Favourite, Brownlees' Russet, Ballinora, Encore, Smart's Prince Arthur, Gabalva, Cornish Aromatic, Belle de Boskoop, May Queen, Blue Pearmain, Easter Orange, Lord Burghley, Sir John Thorneycroft, Allen's Everlasting, Lord Hindlip and Norman's Pippin.

Messrs. SUTTON AND SONS showed a collection of twenty-five seedling Potatos, nearly all second-earlies of their famous "Ben" strain. Each dish was accompanied by a plant to show the distinct habit of the haulm. The varieties exhibited were tried at Ormskirk and declared to be immune to wart disease. It was recommended that the Council be asked to send a letter of appreciation to Messrs. Sutton and Sons for their work in Potato breeding over so many years.

ROYAL CALEDONIAN.

THE first monthly meeting of this Society for the current session was held at 5, St. Andrew Square, Edinburgh, on the 2nd inst. Mr. W. J. Thomson, the newly-elected President was in the chair, and there was a good attendance.

The President took as the subject of his address "The Prevention of Waste," more especially in relation to horticulture. After a general survey of the immense waste which goes on in wild nature, and in many of the industries and other ways, he said that the waste of valuable human food through the depredations of insects and fungi was incalculable, and that if the time and money spent on its prevention could be eliminated the value of our crops would be very much enhanced in value. But until there was better organisation of our teaching machinery, and the practical gardener received more recognition as a factor in the situation, more or less wasteful methods would continue. There was also much need for concerted action in dealing with many of the pests, such as big bud of the Black Currant, without which it was hopeless to bring them under control.

The exhibits were:—Berberis hyemalis, from Mr. MARQUIS, Inveresk Gate, Musselburgh, and Primula Coral Pink from Mr. D. ARMSTRONG, The Drum, Gilmerton. Both exhibits were awarded cultural certificates.

GUILDFORD CHRYSANTHEMUM.

THE annual meeting of this Society was held at Guildford on the 25th ult.; Mr. Westlake, Chairman of the committee, presided.

The secretary, Mr. W. Miles, read the committee's report which claimed that the show held last November was a great success from every point of view. The balance sheet for the year, presented by Mr. W. T. Patrick, J.P., showed a credit balance of £101. Mr. H. Cook, gardener at Stoke Hill House, was presented by Mr. Westlake with a clock as a momento of his success in group showing at the Society's exhibitions in 1924 and 1925—there having been an insufficient number of competitors to enable him to hold the cup presented by Mrs. Hamilton Fellows.

The President, F. F. Smallpeice, Esq., was re-elected; Mr. Westlake was re-appointed chairman of committee; Mr. Patrick, hon. treasurer; Mr. Miles, secretary; and Mr. Olds, auditor.

The Society's show, interrupted during the war, was recommenced four years ago without any funds in hand, but success has followed success, and in the last four years the substantial balance of £101 has been accumulated.

THE ORCHID CLUB.

AT the meeting of the Orchid Club, held on February 12, there was an extensive display of well-flowered Orchids in fine varieties and decorative species.

PREMIER DIPLOMA.

Odontoglossum Mars.—This well-known hybrid, which is remarkable for the magnificence of its solid crimson colouring, large size and excellent shape, was shown with a full spike of fifteen flowers, by Dr. CRAVEN MOORE.

DIPLOMAS OF MERIT.

Cypripedium Athollii (B. Louvain × C. Carola).—A fine flower of excellent habit. The flat, dorsal sepal is of ovate form, three inches across, white, with a median band of crimson; the sepals and lip are well proportioned, and coloured pale green with brown shading. Shown by Sir W. THOM.

C. Elspeth (C. Elise II. × C. Perseus).—A well-displayed flower of very fine shape and proportion. The orbicular dorsal sepal is flat with a large green luna surrounded by a broad white band, a few dark spots being present in the luna. The petals and lip are well-displayed, green, with brown shading. Shown by Dr. CRAVEN MOORE.

CERTIFICATES OF CULTURAL COMMENDATION.

To Mr. WILLIAM A. STEWART for plants of Coelogyne Mooreana and Masdevallia Pourbaixii.

GROUPS.

Dr. CRAVEN MOORE (gr. Mr. W. Gilden), exhibited a very showy group. In the centre was a fine specimen of Dendrobium Lady Colman, and on each side of this were several freely-flowered plants of D. nobile Tyntesfield var. The body of the group was filled with Odontiodas and Odontoglossums among which were well-grown plants of Oda. Freda, Oda. Cora, Odm. Brunhilda, Odm. Pyramus, Odm. Princess Yolande, and several plants of Odm. crispum xanthotes.

Sir WILLIAM THOM (Gr. Mr. R. Williams), staged an effective group in which were several pretty new unnamed seedling Odontoglossums and Cypripediums. This group also included large plants of Cypripedium Hestia vars. Moonbeam and Ruth, and a good variety of C. Lord Wolmer.

A. T. CUSSONS, Esq. (gr. Mr. A. Dalgleish), staged an elegant group of Cymbidiums, including large plants of C. Gottianum, C. Alexanderi rubellum, C. Savageianum, and others; the body of the group was filled in with various Cypripediums.

B. J. BECKTON, Esq. (gr. Mr. W. A. Stewart), exhibited a collection of mixed Orchids, the centrepiece of which consisted of a plant of Coelogyne Mooreana, Westonbirt var., bearing seven spikes of bloom. He also showed the pretty little Helcia sanguinolenta, Gomeza planifolia carrying four long, densely-flowered sprays of light yellow-green blooms with a scarlet dot on the column; the unique-coloured Lycaste lasioglossa, and two dozen plants of Cypripedium Becktoniae, illustrating the remarkable free-flowering habit of this old hybrid.

KINGSTON AND SURBITON CHRYSANTHEMUM.

THE annual meeting of this society was held on Friday, February 5, at Surbiton Assembly Rooms. The President, G. C. Hodgson, Esq., occupied the chair, and there was a good attendance of members and friends. A very encouraging report on the past year's work was read by the Chairman. This stated that the annual exhibition was a great success, about forty per cent. more exhibits being staged, also many very excellent non-competitive groups of plants and fruits. New Challenge Cups had been given by the tradesmen of Kingston and Surbiton, by the late Mrs. Bond, of Croylands, Surbiton, and by M. B. Davie, Esq. The Tradesmen's and Bond Cups will remain the property of the society, the winners receiving N.C.S. Medals. The balance sheet showed upwards of £16 in hand, and five Silver Cups, value £73; this was considered very satisfactory. The president was unanimously re-elected, as was the secretary, Mr. W. H. Divers, V.M.H., and it was decided to hold the next show on Wednesday, November 3, as many small growers find a difficulty in keeping their flowers later than this date.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT.

Mr. Chas. H. Curtis presided at the monthly meeting of this society, held in the R.H.S. Hall, on February 8. Great pleasure was expressed by the committee when the secretary brought forward twenty-three applications for membership, all of which were accepted; this brought the number of new members for 1926 to thirty-three. Two members withdrew interest from their deposit accounts amounting to £9 17s. 8d., and the sum of £43 4s. 2d. was passed for payment to the nominees of two deceased members. The sick pay for the month on the Private side came to £143 14s. 5d., and on the State side to £152 0s. 2d.; Maternity claims totalled £15. Extra benefit grants were made to nine members, amounting in all to £32 19s. 0d., and six other cases were considered. A draft of the aunual report was submitted and approved for presentation to the annual meeting on March 8, at 7.30 p.m.

GLASGOW AND WEST OF SCOTLAND HORTICULTURAL.

At the monthly meeting of the Glasgow and West of Scotland Horticultural Society, held on Wednesday, the 10th inst, the President, Mr. Charles Young, who occupied the chair, announced the death of their chaplain, the Rev. David Dickie, D.D., Minister of Old Kilpatrick.

Thereafter Mr. R. Prosser, of Messrs. Austin and McAslan's, Cathcart Nurseries, delivered a lecture on "Flowering Shrubs," which he said had been greatly neglected in Scotland, especially in small villa and surburban gardens. In public gardens and parks where gardening was carried on by professional gardeners shrubs received a certain amount of attention, but in the gardens of the amateur, their value and charm were not appreciated as they ought to be. The lecturer emphasised the importance of transplanting and pruning, and he explained the difference in the treatment of evergreen and deciduous varieties.

In the discussion which followed, Mr. Joseph Dobson deplored the lack of originality shown in the gardens attached to corporation housing schemes, while Mr. John Cairns commented on the wonderful results that could be obtained in Glasgow by planting shrubs in a sheltered position. He had seen shrubs as well-grown in the west of Scotland as in Cornwall and Devonshire.

RENFREW HORTCULTURAL.

Lecturing on Border Carnations before the members of the Renfrew Horticultural Society on Thursday, February 18, Mr. David Torrance, Busby, said layers should be planted at the end of September or beginning of October when they would make root quickly and become established before frost sets in. Plants in the open were preferable to those in pots kept in a frame over winter, as they were always stronger and earlier. Carnations were not gross feeders and in emphasizing the evils of over-feeding he recommended weak liquid manure as a safe stimulant. Carnations should be layered, he said, in July, in a compost consisting of pure loam and silver sand, but no leaf-soil, as the latter was a harbour for pests, fungous diseases and weeds. The bursting of the calyx was traced to the work of disbudding, and an excess of heat or moisture, while the keeping of a bud in a perpendicular position enabled it to develop all around and open normally. Mr. Torrance spoke hopefully of the results of experiments with bacterised peat, and described the raising of seedlings as an interesting hobby, despite the glorious uncertainty of the results.

In answer to a large number of questions, Mr. Torrance explained the cause of white spots on scarlet Carnations, affirmed that the last week of February or first week in March was the best time to take early Chrysanthemum cuttings, and detailed the advantages to be obtained by taking Dahlia cuttings as close to the tuber as possible without cutting any part of the surface of the latter.

KIRKCONNEL HORTICULTURAL.

The annual meeting of this Society was held on the 12th inst., when the financial statement showed a loss of £14 18s. 1d., leaving still a balance of £35 5s. 6½d. to the credit of the Society. After discussion, it was resolved to reduce the prizes in the confined classes, and a committee was appointed to revise those in the special ones. As Mr. and Mrs. McMillan, The Knowl, had been of great service to the Society it was agreed to appoint them honorary members. In view of the resignation of the secretary, Mr. J. McCrone, and the treasurer, Mr. J. McCormick, junr., Mr. J. Hardie and Mr. T. Smith were elected joint secretaries, and Mr. James Williamson, treasurer. J. I. McConnel, Esq., Hoddom Castle, was reappointed president. It was resolved to hold the next show on August 21.

Obituary.

James Birrell.—The death took place at Dunblane on Thursday of last week, of Mr. James Birrell who had been gardener at Braco Castle, Perthshire, for nineteen years. Deceased was in his 47th year.

Charles Maron.—With deep regret we have to record the death of M. Charles Maron, of Brunoy, France. M. Maron was in his seventy-fifth year and passed away on February 25. As a young man M. Maron was employed in this country, serving for awhile under Mr. James O'Brien at Messrs. E. G. Henderson and Son's Nursery, and also at Kew. After leaving England he became gardener at Corbeille, where he commenced the work of hybridisation for which he has been famous for many years. Later he took charge of M. Louis Fournier's establishment at Marseilles, and it was here that he raised Laelio-Cattleya Berthe Fournier, L.-C. Andreana, and many other showy Orchids. Rather less than thirty years ago he left Marseilles and established himself at Brunoy, Seine-et-Oise, where he remained until his decease. Some of the earlier Orchid hybrids to flower at Brunoy were Brasso-Cattleya Digbyano-Mendelii, Laelio-Cattleya Ernestii, L.-C. Henry Greenwood, and the fine Cattleya Maroni. M. Maron had a charming personality that endeared him to all his friends, who, in turn, admired him for the skill and patience with which he pursued the business of raising new Orchids by means of hybridisation. He was among the earlier workers in this branch of horticulture, and lived to see wonderful developments, many of which arose from foundations laid by himself.

Walter Povey.—Many who were employed at some period at Messrs. J. Veitch and Sons' Coombe Wood Nursery, Kingston, and many who purchased trees and shrubs at that establishment will have kindly remembrances of Mr. Walter Povey, who for a long number of years was foreman and salesman at Coombe Wood. We have only now received information that this fine old plantsman passed away a few months ago at Ottershaw on the nursery where, as a boy, he commenced his career. He had a wonderful knowledge of trees and shrubs, their cultivation and propagation, and his genial manner and readiness to impart information to young men and to customers won him considerable popularity, esteem and respect. Mr. Povey was about seventy years of age.

Dumitru I. Stefanescu.—We are sorry to learn from our contemporary, the *Revista Horticola*, of the death, on the 18th of January, of Mr. D. I. Stefanescu, a prominent Roumanian horticulturist. Although only forty-three years of age, he had done wonders in the post-war organisation and development of horticulture in his country. He spent four years at the Versailles College of Horticulture, and after his return worked in various capacities under the Roumanian Minister of Agriculture, finally becoming head of the state nurseries and Horticultural Director. He also founded and conducted the *Revista Horticola*, the organ of the Roumanian Horticultural Society, and his final ambition was the foundation of a National College of Horticulture, a task which at the time of his greatly regretted death was practically completed.

TRADE NOTES.

A number of large trees having been prepared for removal near the new city of Delhi, Messrs. William Barron and Son, Ltd., of Barrowash, near Derby, have been instructed to send two of their transplanting machines to the order of His Highness the Maharajah of Bharatpur, Delhi, with instructions for carrying out the work of removal and replanting. Trees weighing from five to forty tons, and up to fifty feet high, have been successfully removed by Barron's transplanting machine in various parts of the world. Amongst the historical trees moved in this country are the Buckland Yew, Dover, mentioned in the Doomesday Book, and the John Knox Yew, at Langbank, on the Clyde, under which tree John Knox administered his first sacrament.

A well-known firm of nurserymen has brought to the notice of the Chamber of Horticulture an experience of interest to the trade in connection with a town-planning scheme. Under these schemes areas are divided into land suitable for (1) dwelling-houses; (2) industrial areas, and (3) open spaces. Upon examination of the plan for the particular district in which this nursery is situated, it was found that the whole of the land occupied by the nursery was scheduled under Section (1), from which it must be presumed that the only development allowable in the future would be the building of dwelling-houses. At the official enquiry it was pointed out how the scheme might prevent extension on the nursery by way of additional glasshouses or nursery buildings. The officials were sympathetic, and stated it was not their wish to prevent any such development, and suggested a special arrangement in order to safeguard this nursery firm. This is being done. Nurserymen and growers whose land may come within the purview of these planning schemes are advised to take an early opportunity of examining their position.

Readers requiring information and advice respecting Patents, Trade Marks or Designs should apply to Messrs. Rayner and Co., Patent Agents, of 5, Chancery Lane, London, who will give free advice to readers mentioning this paper.

NEW HORTICULTURAL INVENTIONS.

THESE particulars of New Patents of interest to readers have been selected from the Official Journal of Patents, and are published by special permission of the Controller of His Majesty's Stationery Office.

LATEST PATENT APPLICATIONS.

1,133.—Cook, H.—Support for garden hose, etc. January 14.

1,259.—Harris, W. G.—Travelling greenhouses. January 15.

814.—Olsen, O. R. and Torkildsen, W.—Manufacture of phosphatic fertilisers. January 11.

545.—Marriott, S.—Garden rollers, etc. January 7.

95.—Lee F.—Frame for growing Peas, etc. January 2.

SPECIFICATIONS PUBLISHED.

245,179.—California Spray Chemical Co.—Insecticides.

245,275.—Dyer, N. S.—Hoeing and thinning implements.

244,705.—Bergerioux, R.—Machines for distributing fertilisers.

244,908.—Lawrence, J. R. H.—Mowing machines and the like.

ABSTRACT PUBLISHED.

A Novel Hoeing Tool. *Patent, No.* 242,909.—A hoe having a pivoted cutting blade has been introduced into this country by Mr. J. Koch, of Jerne, near Esbjerg, Denmark. The tool consists of a yoke-shaped blade, having its ends pivotally connected to arms projecting from a handle so that it is free to move angularly to a limited extent during operation. The ends are bent inwardly above the arms to form stops to limit the movement.

Printed copies of the full Published Specifications may be obtained from the Patent Office, 25, Southampton Buildings, London, W.C.2., at the uniform price of 1/- each.

TRADE MARKS.

This list of Trade Marks of interest to readers has been selected from the Official Trade Marks Journal, and is published by permission of the Controller of His Majesty's Stationery Office.

IRONCRETE.

464,633.—Garden Rollers.—Scoffin and Willmott, Railway Arches, Station Road, Forest Gate, London, E.7. January 30.

SEMSOL.

464,030.—Phosphate Fertilisers.—Richardsons Chemical Manure Co., Ltd., 19, Short Strand, Belfast. December 23, 1925.

464,144.—The word EARLYBIRD, withillustra tion of bird, for a worm-killer and fertiliser.—Joseph Metcalf, Argyle Works, Argyle Street, Accrington. December 23, 1925.

HOOFALIZER.

464,180.—Fertilisers.—Stonehouse Works Co., Spon Lane Mills, Houghton Street, West Bromwich, Staffordshire. December 23, 1925.

GARDENING APPOINTMENTS.

Mr. John W. Dickinson, for the past ten years gardener to the LADY ROSSMORE at the Stud House, Hampton Court, as Gardener to His Grace the DUKE OF NORFOLK, Arundel Castle, Sussex. (Thanks for 2/- for R.G.O.F. Box.—EDS.).

Mr. Stewart Zander has been appointed Superintendent of Coatbridge Public Parks in succession to Mr. WILLIAM ARMSTRONG.

Mr. G. W. Briars, for the past five-and-a-half years gardener to Lt.-Com. CHARLES MEYNELL, R.N., Burcote Brook, Abingdon, and previously general foreman at Orwell Park Gardens, Ipswich, as gardener to A. L. WIGAN, Esq., Forest Park, Windsor. (Thanks for 2/- for R.G.O.F. Box).—EDS.

Mr. John Frank Evans, previously gardener to T. PARTINGTON, Esq., Hayed Eupyn, Colwyn Bay, N. Wales, as gardener to Mrs. LLOYD PRICE, Glyn Abbot, Holywell, Flintshire.

ANSWERS TO CORRESPONDENTS.

BEGONIA GLOIRE DE SCEAUX. *W. A. T.* It is very difficult to state why your Begonia Gloire de Sceaux should drop its flower buds, as your treatment appears to be correct in every respect, and our experience of this Begonia is that it opens its flowers perfectly in the temperatures you mention. Fog will, of course, cause the flower buds to drop, when Gloire de Lorraine is not affected. Are you sure that your plants are not affected with Begonia mite?—generally known as rust. If so, this would cause the buds to drop off. Without knowing all the circumstances we cannot do more than surmise the possible cause of the trouble.

BRITISH PLANTS.—*A. H.* The best complete work on the British wild flowers, with really good illustrations, is the *Handbook of the British Flora*, by Bentham and Hooker. A new edition has recently been issued by Messrs. Lovell Reeve and Co., Henrietta Street, Covent Garden, London, W.C.2. The Flora is 12/-, and the volume of illustrations (drawings), by W. H. Fitch, is 12/-, postage extra.

FLOWERS FOR EASTER.—*L.* You must allow five to six weeks to get Lily-of-the-Valley into flower, and in the absence of bottom heat the longer period will be necessary to get them forward in time. In any case, even when in full flower, they should keep fresh in a cool greenhouse for at least two weeks, although a great deal depends on the prevailing weather. The Liliums will require a longer period ere they flower, much, of course, depending on the weather. You should allow at least two months, therefore, there should be no difficulty in getting your most backward batch into flower for Easter, if you can give them a steady temperature of 60°. Should they become too forward lower the temperature a little; in any case, it is better to be a little too early than too late, as the flowers will keep in good condition for a considerable time..

GARDENER'S ILLNESS AND DISMISSAL.—*H. M.* Without full information on all the facts it is difficult to answer your queries definitely. Whether illness is a good ground for dismissal without notice depends on whether such illness is permanent or only temporary. There has been no decision in the High Court as to what length of notice an under-gardener is entitled to, but at least two County Court judges have decided that he is entitled, like a head gardener, to a month's notice. Such decisions, however, are not binding on other judges, and the matter really turns on the custom of the particular locality. No fixed rule appears to exist as to whether an employee can claim wages during his illness whilst he is in receipt of sick benefits under the National Health Insurance Act, and there have been conflicting decisions on the point, but many employers make up the sick benefit received to the amount of the value of the wages.

GLADIOLUS PRIMULINUS HYBRIDS.—*W. H.* We should not like to hazard an interpretation of the classes mentioned by you. Alice Tiplady and Myra have been taken to represent a new class of "Medio Prims" by one English grower and the American Gladiolus Society is searching for a new name which will clearly designate this new type of flower, "and will give due consideration to our English brothers' views on the same subject." In the meantime where it is desired to exclude the large type the following wording has been used both in America and Canada: "Varieties of primulinus having the distinctive hooded bloom and slender stem as characteristic of the primulinus type or species." Alice Tiplady and Myra were introduced about ten years ago, but Copperhead, introduced last year as a primulinus form, emphasizes the necessity for a distinction being made between such flowers and those of Nydia, La Saviere, Scarletta, Vanessa and Ianthia.

PELARGONIUMS UNHEALTHY.—*W. A. J.* We could discover no sign of fungous disease on the single specimen of Pelargonium received We think, however, the trouble arises from the use of slag on the stages instead of gravel or well-washed cinders. It is quite possible that the slag has given off a poisonous gas (sulphur fumes), and that this is the cause of the trouble.

PINES AT BOURNEMOUTH, ETC.—*Abbey.* The Pine woods of Bournemouth consist principally of the Maritime Pine (Pinus Pinaster, syn. P. maritima) with a few Scotch Pines (Pinus sylvestris). The Somma Cypress, Cupressus sempervirens (horizontal type) is still in existence. Somma is a village about four miles north of Galarate on the railroad from Milan to the Alps. The late Mr. Elwes measured the tree in 1906, giving the dimensions as eighty-five feet high by seventeen feet three inches at five feet from the ground. He considered the legend that the tree was planted in the year of the nativity of Our Lord as most improbable, but suggests that the existing tree is a descendant of an old tree which formerly grew near. The chief sources of supply of wood pulp are Picea excelsa, the Common Spruce, in Norway, Sweden and Finland; Picea alba (syn P. canadensis) and P. nigra in North America, Canada and Newfoundland; Picea sitchensis, P. albertiana and Populus trichocarpa in western North America.

PRUNING LAVENDER.—*M. H. W.* The end of March or early in April is the best time to cut Lavender bushes hard back in spring, but it is doubtful if the plants would produce more than an occasional flower spike here and there on the growths this year. Immediately after the spikes are cut in August is the best time to prune the bushes.

REPAINTING GLASS HOUSES.—*A. H.* Glass-houses have often been repainted inside while the plants or some of them were still there. The usual plan is to move the plants to one end of the house, or partly into a neighbouring house while the other is being painted. Where the paint used was linseed oil, with a moderate amount of turps in it, we have not seen any plant damaged. The end of the house being painted could be given a considerable amount of ventilation during the day, and that would help the paint to dry rapidly and carry off any fumes. When finished, the plants could be taken back to the painted end while the other end is being done. No creosote should be used inside the house, nor any tar on the hot-water pipes. Summer is the best time for repainting inside.

WOOD ASH FOR ALPINES.—*H. L. R.* Wood ash from garden fires forms a good top-dressing for alpine plants. It should, however, be mixed with sharp sand in equal proportions and used with care.

YUCCA WITH SUCKER.—*T. P.* It the sucker is growing quite close to the ground it will probably have developed roots, in which case it would grow quite well if detached and planted separately. If not already rooted you should remove it carefully and insert it in a part of the garden where it would not be likely to receive the full rays of the sun, or you might place it in a pot containing soil of an open texture, when it will root in a greenhouse. With regard to the flowering of Yuccas, this very largely depends on the summer of the previous year. When the weather is very hot for a prolonged time, such as in 1921, the conditions favour the formation of flowering shoots, which accounts for the extraordinary number of Yuccas that bloomed in 1922. Yuccas will flower at intervals for a long number of years.

Communications Received.—Argus.—S.—H. A. C.—J. H.—L. T. P.—R. D.—O. M.—J. P.—A. T. H.—P. & M.—V. S. S.—J. C.—W. P.—H. V. O.—A. A.—M. C.—A. G.—Ardtara.—M. W.

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SUPPLEMENTARY ILLUSTRATION.
Rhododendron Lindleyi.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 41·1.

ACTUAL TEMPERATURE—
The Gardeners' Chronicle Office 5, Tavistock Street, Covent Garden, London, Wednesday, March 3, 10 a.m. Bar. 30·1 Temp. 50°. Weather, Dull.

Early Explorers in Australia.

No romance conceived by the human mind has more of the movement of adventure, the pathos of the unperformed, or the warm glow of achievement than that embodied in the work of the world's explorers. Yet strangely enough the world accepts with nonchalant forgetfulness services for which it might be expected to be for ever grateful. Thus, of that band of adventurers who discovered and explored Australia, all save one or two are unknown to the general body of mankind. Yet the imagination, the courage, enterprise and fortitude of the discoverers and explorers of Australia should be an inspiration to all people of British birth and a sure title to immortal memory. For although the earliest visitants to Australia were surely not British, it was men of their race who occupied effectively this great southern land. Before the English, the Dutch had been there, and before the Dutch almost assuredly, the navigators of Portugal in her great sea days had skirted those shores and perchance set foot thereon; and before them adventurous seamen from Malay, guided by compass which came to them, as it is said, from China, had "discovered Australia." Of these precursors of the British explorers Ida Lee in her work* on the *Early Explorers in Australia* has gathered together much interesting information. Thus, as we learn from her pages, the first specimens to reach Europe (in 1698) from the strange new land were shells of the Nautilus collected by the sea captain, William Vlamingh, who also saw and captured black swans, saw "rats as great as cats which had a kind of bag or purse hanging from the throat downward" and many well-scented trees out of the wood of which "is to be drawn oil smelling as the Rose"—the first record of the Eucalyptus typical of Australia. To Dampier, however, must be given the credit for the first botanical exploration of Australia. He, indeed, preceded Vlamingh, voyaging thither with buccaneers in the *Cygnet*, of London, in 1688, and again visiting and collecting in the *Roebuck* in 1699. With a prescience which is remarkable, in view of the general opinion of the time, which made out New Holland to be a great continent extending over southern Polar regions and uniting with the other southern continents, Dampier declared that though he did not know whether it were island or continent, "it joins neither to Asia, Africa nor America." Thus was given the first blow to the general belief that Terra Australis Incognita—the imaginary antarctic continent—covered the southern part of the eastern and western hemispheres. Although other British seamen had preceded Dampier—the *Tryal* was wrecked there in 1622 and the *London* reached the coast off the Abrothas in 1681—yet the effective exploration of Australia may well be allowed to date from the days of Dampier, when, in 1688, the *Cygnet* being at anchor, natives were seen on the shore and a boat, sent off for water and provisions. Fortunately Dampier, although the sometime companion of buccaneers, was "well acquainted with botany" and it is indeed as curious as fortunate that many other of the early explorers were also and even better acquainted with botany. Dampier's collections of plants—presumably the first Australian plants brought to Europe—are, as the author states, preserved to this day in the Herbarium of the Oxford Botanic Garden. Among the many interesting plants contained in it are Dampier's Glory Pea (Clianthus Dampieri, Cunn.), Casuarina equisetifolia, Melaleuca gibbosa, Solanum orbiculatum, Dammara alba and Trachymene pusilla. And not the least interesting of the numerous illustrations in Ida Lee's volume are the pictures of Australian plants from Dampier's voyages. Not much less than a century had to elapse before Dampier's pioneer work bore fruit; for it was not till 1770 that the Endeavour, a little barque of 370 tons—commanded by the greatest of all modern explorers—carried the White Ensign on what has with justice been called "the most momentous voyage of discovery that to the English nation has ever taken place." The adventurous explorations of the east coast of the continent are, or should be known, to every Briton. To us the fact of capital importance was that a great botanist, Joseph Banks—with Solander as companion—bore Cook company and it was with Lieutenant Cook that Banks and Solarder made their first landing on April 29, 1770, on the east coast at the place now known as Kurnell. There to-day is the inscription "to James Cook and Joseph Banks, the Columbus and Maecenas of their time" recording how "this spot once saw them ardent in the pursuit of knowledge, now to their memory this Tablet is inscribed." Always skirting the coast, and landing here and there, Banks and Solander, were assiduous in collecting, finding almost every plant new and noting with amazement the edgewise set of the Eucalyptus leaves and seeing such profusion that Cook was led to alter the name which he had given to this spot from Stringray to Botany Bay—"the great quantity of plants Mr. Banks and Dr. Solander found in this place occasioned my giving it the name of Botany Bay." Thus, as later history relates, was discovered, and by right of discovery occupied, the narrow strip of land whence spread during two-and-a-half centuries, like wave on wave, ever-reaching further, the explorations which have made known the coasts and hinterland and indeed the very heart of the continent. And thus it was that with a new world a new and unique flora was discovered and made known. Following upon Banks came other botanists, David Nelson in the ill-fated Bounty; Labillardière; Archibald Menzies, surgeon on the Discovery; and then, most distinguished of all, Robert Brown, who went with Captain Flinders on H.M.S. Investigator. The result of Brown's labours are yet to be seen in the collection of his plants in the Natural History Museum at South Kensington. After the successful assault on this continental fortress came a period of consolidation. With the discovery of the splendid harbour, concealed from Cook by the headlands, Sydney became established and inasmuch as it is customary to suppose that the Empire builders builded better than they knew, it is interesting to read the words of Capt. Tench on the arrival of transports and just before the ships sailed past the heads at what is now Sydney Harbour: "to us it was a great and important day and I hope will mark the foundation of an empire." Passing over a period of years during which time many explorers set out to find and at last found a way over the Blue Mountains, which barred the settlement from the hinterland, we come to the advent of another botanist whose but little remembered name deserves honour of all time, Allan Cunningham. As a clerk to Aiton, engaged on the second edition of *Hortus Kewensis*, Cunningham was doubtless inspired with love of travel and botanical collecting by Robert Brown, then librarian to Sir Joseph Banks and concerned with seeing the *Hortus Kewensis* through the press. Cunningham sailed from Plymouth in 1814 by way of Rio de Janeiro and arrived at Sydney in 1816. At first, content to accompany expeditions into the interior, he soon proved himself and became a leader. As he journeyed in the unexplored parts of the continent he planted all kinds of seeds which he had gathered in England, South America and the Cape and no doubt his planting has caused many a surprise to the botanist. Thus it may be that the groups of Agave americana still to be found in places are due to his broadcasting. More beneficent perhaps was his implanting a love of English flowers into the hearts of the early settlers by making a practice of distributing seeds of Primrose, Wallflower and Violet. The curious will find, and will be grateful to Ida Lee for publishing, an epitome of Allan Cunningham's *Journal* for the first two years (1817—18) of his stay in New South Wales and an epitome of his explorations up to the time of his return to England in 1831. Upwards of 400 pages are devoted to the *Journal* and the space is well bestowed, for the *Journal* which is preserved in the Natural History Museum is in its quiet relevance and simple subjectiveness a worthy memorial of a fine character. To the horticulturist interested in plants and their history to turn these pages is to meet a host of plant friends and acquaintances, many of which we owe to Cunningham's introduction. We meet the Eucalyptuses in many varieties, the Waratah, Telopea speciosissima—the carmine-coloured native "Tulip"—loved by the natives for the rich, honeyed juice of its flowers; Phytolaccas, tree Clerodendrons, twelve to eighteen feet high; Olearias, including O. stellulata; Baccharis arguta, many Helichrysums, Grevilleas, Acacia melanoxylon of van Dieman's Land "with its seed attached to the cord by a coloured plicated umbilical cord;" Callitris australis up to seventy feet high; Pancratiums, some new to science; new Tecomas (T. Oxleyi, named after his fellow explorer); Pittosporum, many Acacias, Hakeas—an almost endless band of plants all significant to the botanist and all indicative of the strangeness and uniqueness of the Australian flora. In 1831 Cunningham returned home and to a Kew man home means Kew, so he established himself at Strand-on-the-Green not far from the Gardens. He was offered the post of Colonial Botanist in 1832, but turned the job over to his brother Richard, who was also a man of Kew. But Richard met a sombre fate at the hands of natives soon after he had settled at Port Jackson. Allan consented to take the vacant place and set out again for Australia in 1836. But though a quiet, patient man, his genius lay in the wild and in the exploration of it. He was not happy in the "Government Cabbage Garden," as he called it, and resigned to begin collecting on his own account—"to enter with all his might on a more legitimate occupation." But although full of spirit his health failed. His explorations, save the last, which comes to all, were done. He died at Sydney in 1839 and was buried there where lie so many of Australia's explorers. A marble urn in the Botanic Gardens commemorates him, and yet more appropriate is the commemoration in the names of places he explored, Mount Allan and Mount Cunningham.

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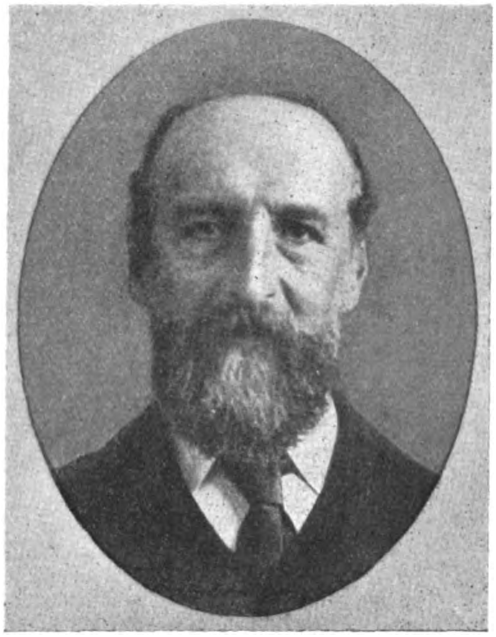
* *Early Explorers in Australia.* From the Log Books and Journals, including the Diary, of Allan Cunningham, Botanist. By Ida Lee (Mrs. Charles Bruce Marriott). Methuen and Co., London.

Citrus Fruits and Gourds from La Mortola.—The interesting collection of Oranges, Lemons and Gourds from Mr. Cecil Hanbury's garden at La Mortola that was shown at the Royal Horticultural Society's show on Tuesday, 9th ult., is now on exhibition in House 14c at the Royal Botanic Gardens, Kew.

English Professors Honoured.—The Senators of Aberdeen University have agreed to confer the honorary degree of Doctor of Laws on Francis Wall Oliver, M.A., D.Sc., F.R.S., F.Z.S., Professor of Botany at the University of London, and on Thomas Barlow Wood, C.B.E., M.A., F.R.S., Drapers Professor of Agriculture, Cambridge University, and joint editor of the *Journal of Agricultural Science*.

Dr. B. Daydon Jackson.—The venerable and accomplished general secretary of the Linnean Society will soon be eighty years of age, and on the occasion of his birthday will be presented with his portrait, which is being painted by Mr. Ernest Moore. The cost of the portrait is to be defrayed by private subscription, and those friends of Dr. Jackson who have not contributed to the portrait fund and wish to do so are asked to send without further delay. Sir David Prain is acting as treasurer, and to him, or to Mr. J. Ramsbottom, the Botanical Secretary of the Society, the donations should be sent. We understand that Dr. Daydon Jackson will retire from the position of general secretary on reaching eighty years of age, but will continue in the service of the Linnean Society as Curator of the Linnean Collections, a post that will allow him time and opportunity to write the history of the Society—a task he has long had in view, and for which none is so eminently fitted.



MR. A. ALDERMAN.

Mr. Alfred Alderman.—On the occasion of the twenty-fifth anniversary of the founding of the Croydon Horticultural Mutual Improvement Society, several well-known horticulturists received thanks for the work they had done for the Society. Three were especially singled out for compliments: Mr. John Gregory, the veteran founder of the Society; Mr. Harry Boshier, the hon. secretary; and Mr. Alfred Alderman, chairman of committee. The last-named is an old friend of *The Gardeners' Chronicle*, and one, who, though not now actively engaged in horticultural pursuits, places his wide knowledge and ripe experience at the disposal of the gardeners of the Croydon district, having acted as Chairman of the above Society for twelve years. Mr. A. Alderman commenced his gardening career as a lad, under his father, who was then gardener to J. R. Reeves, Esq., at Woodhayes, Wimbledon. Here he remained for three years as journeyman and then became foreman; for over two years he managed the gardens during the illness which ended in the death of his father. In 1872, Mr. Alderman became foreman under Mr. Henderson, then gardener to Sir Henry Peek, Wimbledon House, a garden famous at the time for its fine collections of plants and general upkeep. When Mr. Henderson resigned, Mr. J. Ollerhead became gardener, with whom Mr. Alderman served as general foreman for two years. His first appointment as gardener was with C. Czarnikow, Esq., at Elm Court, Mitcham, Surrey, where he had ample scope to prove his ability. His employer gave him every encouragement, and Mr. Alderman became a very successful exhibitor, especially of Grapes and Chrysanthemums, for twenty-three years. In 1886, Mr. Czarnikow purchased an estate at Effingham Hill, Dorking; Mr. Alderman went with him and had the pleasure of organising the building of extensive glass-houses and other garden buildings, the lay-out of pleasure grounds and flower borders, and the construction of drives and paths. In these works he gave abundant proof of his skill, to the great satisfaction of his employer, who entertained on a lavish scale. This pleasant association terminated only with the death of Mr. Czarnikow, in April, 1909. At the request of the family, Mr. Alderman managed the place for three years, but owing to the ill-health of his wife, he retired in 1911, and went to live at Croydon, after thirty-five years happy service with a family that still regards him as a personal friend.

Vancouver's Grave.—A number of young Douglas Fir trees, raised at Kew from seeds sent from British Columbia, were planted by Mr. F. A. Pauline, Agent-General for British Columbia, near Captain Vancouver's grave in Petersham Churchyard, on the 27th ult., in memory of the explorer.

Seed-Raising.—Interesting details of the production of seeds for sale were given by Mr. W. F. Giles, of Messrs. Sutton and Sons, at the meeting of the Royal Horticultural Society, on the 23rd ult, the lecturer's remarks being illustrated by a number of beautiful lantern slides. Mr. Giles stated that it is very difficult to obtain pure seeds of any particular variety of the Brassica family unless the respective sorts are grown a considerable distance from other members of the same family, the wind being a potent factor in carrying pollen across the fields from one crop to the other. He stated that whilst the greater number of garden seeds could be grown in this country, there are certain kinds which it is impossible to raise commercially in England, the Cauliflower for example. Most of the Giant Autumn types of this vegetable do best on the shores of the Mediterranean or Adriatic, where considerable areas of the plant are grown for seed-production. Seeds of other types of Cauliflower are grown in northern Europe. With regard to harvesting, seeds, Mr. Giles stated that those of choice flowers for the greenhouse are all carefully picked off by hand and put into little trays or bags to dry. In the case of flowers and vegetables grown out-of-doors, the seed heads are cut and laid on large cloths until they are dry enough to thrash out. Turnip heads for seed are cut, and if the weather is hot and dry the seeds can be thrashed out in the field on large cloths, but in damp weather the seed-heads must be put in stacks until they are dry. Peas are thrashed, graded through machines, and then put on benches for women to pick over by hand.

A New Public Park for London.—By the gift of the site of the Royal Bethlem Hospital to the London County Council by Lord Rothermere, an area of about fifteen acres will be available as a playground and public park in the densely populated borough of Southwark. The gift is in memory of the late Mrs. Harmsworth, mother of Lord Rothermere and the late Viscount Northcliffe, and the new park will be known as the Mary Harmsworth Park. The estate was purchased by Lord Rothermere for £155,000. The building will probably be demolished so that the whole of the site will be available as an open space. At the weekly meeting of the London County Council on the 2nd inst, Lord Monk Bretton stated that the Bethlem Hospital Bill had already passed the House of Lords, and was awaiting second reading in the House of Commons, and owing to the munificence of Lord Rothermere it would be possible, subject to the necessary legislation embodying the agreement entered into by the donor, for the fine open space to be dedicated to the public. It was proposed that the land should be vested in the Council, with rights of management, as a public open space, subject to certain reservations made by the donor, and amendments would be moved to give effect to those proposals. It was hoped that the Council would obtain possession in three years from the date on which the Bill received the Royal Assent.

The Paeony in America.—Mr. James Kelway has kindly sent us a communication received from Mr. A. M. Brand, of Minnesota, president of the American Paeony Society, and from it we make the following extracts:—"It is very strange that the Paeony is not made so much of with you as it is with us and our Canadian friends. From what I have heard and read the English climate must be ideal for Paeonies, and your results should be better than ours, especially as we have much hot, dry and windy weather when our plants are in flower. In the northern two-thirds of the United States and in the southern half of Canada, wherever flowers can be grown, there is no flower that can compare with the Paeony in popularity. We grow beautiful Roses, indeed, we grow all the flowers of the temperate zone, but no flower is thought so much of or so eagerly sought after as the Paeony; it is the pre-eminent flower. The Kelway Paeonies occupy a very high position with us, and no collection is considered complete until it contains such varieties as Kelway's Glorious, James Kelway, Baroness Schröder, Phyllis Kelway and Lady Alexander Duff. This wide appreciation of the Paeony in America has been brought about by the untiring efforts of the American Paeony Society, which has a national scope through the many local societies throughout the country; by the many fine exhibitions of Paeonies; and also by the extensive advertising campaign carried on by the large Paeony growers during the selling season. I wonder you have no Paeony society. Paeony lovers, both in the U.S.A. and Canada, would be intensely interested in anything you could write concerning the history and development of Paeonies, and we should be glad to have the opportunity of publishing such information in the *Bulletin* of the American Paeony Society."

Arsenic in Apples.—A reassuring report in regard to the presence of arsenic in Apples has been issued by Mr. Scott Dodd, City Analyst, Edinburgh. Eight samples were tested, and the results showed that the Canadian varieties, Winesap, Spitzbergen and Rome Beauty, were practically free of the poisonous substance, while minute quantities found in the United States fruits were as follow:—Spitzbergen (White Diamond brand), from Hood River, Oregon, .0072 grains per pound; Rome Beauty, from Buckaroo, Oregon, .0015; Winesap (Snow Kist brand), from Yakima Valley, Washington, .0046; Newtown Pippin, from Sunny Brook Orchards, Oregon, .0103; Newtown Pippin (Blue Goose brand), from Skookum, Wenatchee, .0034. Practically no arsenic was found in the edible portions inside or in the cores, and it was calculated that it would be necessary for one individual to consume nearly two pounds of Apples per day, and to eat every particle—skins, ends and cores—before he would take even one minimum medical dose. In his comments Mr. Dodd stated that mere mention of arsenic suggests to the popular mind poisoning and death, but it was necessary to remember that the poisonous effects of arsenic are limited and that it possesses valuable medicinal and therapeutic properties as well. As a medicine, arsenic is a valuable general tonic, and in small doses acts as a stimulant to the nervous system.

Warter Priory.—Lady Nunburnholme is offering for sale her beautiful home and estate at Warter Priory. Warter Priory is one of the noted gardens of the country, and for many years, especially when in charge of Mr. F. Jordan, these were maintained in splendid condition. The mansion, built on the lines of a French chateau, is surrounded by delightful gardens, and set in a well-wooded estate extending to above ten thousand acres.

The Egyptian Onion Crop.—The acreage planted with Onions this year in Egypt is smaller than in 1925; it is estimated that the 1926 crop will probably not exceed 2,000,000 bags (of 50 kilos), compared with 2,707,000 bags last year. As the majority of the Onion fields were irrigated from two or three weeks later than last year the crop will be about twenty days late, and important consignments are not expected at Alexandria before the middle of March. The crop promises to be good and sound.

Town Botany in Winter.—"Trees and Shrubs" formed the subject of the third of the series of popular lectures delivered by Professor J. Montagu Drummond at Glasgow University on Saturday last. By way of introduction he pointed out that many of the characteristics of trees and shrubs were connected with the fact that such woody plants are perennials of the most pronounced type. The woody plants of cold climates, however, showed many features clearly related to the question of hibernation. The risk which plants ran in winter was not so much that of exposure to cold as that of drying up owing to insufficient absorption of water through the roots, a process which was greatly retarded when the soil was cold, whereas transpiration went on quite actively during winter, especially in windy weather. The most obvious proof of this was the fact that most of our native trees and shrubs were deciduous and cast their leaves—the chief organs of transpiration—in winter. Various arrangements for the protection of shoots and buds during winter were described with the aid of living specimens and lantern slides. The case of evergreen plants was also considered, and the woody plants of the tropics, especially those of a pronounced dry-season area, which display protective features, such as leaf-fall, bud protection, etc., as do our own trees in winter time.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Market Gardening Round London.*—In the Strawberry season, market gardeners provide themselves with thousands of pottles, called quarts. These are formed of white Fir, or laths split up very thinly. The length of the London pottle is eleven inches. The inside diameter at the bottom is an inch, but it gradually enlarges until it is three and a half inches wide at the top, which is finished with a handle rising about four inches above the rim. This pottle properly filled with fruit ought to weigh from twelve to fourteen ounces. For the first early Strawberries, what are called pint pottles are used. These are the same size at the bottom as those just mentioned; but they are only seven inches long, and not quite three inches in diameter at the top, finishing with a handle two inches high. They hold, when filled, about from four to six ounces of fruit. "Punnets" are made of the same material as the pottles. They hold half lb., one lb., two lbs., and upwards, according to the purposes for which they are wanted. Considerable skill is exercised in what is termed, "Topping up a pottle," so as to give to its top the form of a cone. The first row of fruit sits partly on the rim, and exhibits its best broad side half way round the pottle. The next row occupies the bosom of the last, and so on to the top. The other side of the pottle is then "put up" in the same way, and when well done, the fruit is not easily displaced, the pottles are then sent off to market in light spring vans, which hold two tiers of light white wicker baskets; the latter contain thirty-six pottles, but in the case of the best fruit these baskets are divided by first putting in a layer of one lb. punnets, and then a division, filling up with punnets. The supply for the shops is conveyed to them by Welsh or Irish women, who carry them on their heads; these women being paid for every journey they make, earn a good deal of money at this occupation, in which they often walk forty-eight miles a day, *i.e.*, three times, say, from Isleworth, and three times back. This is, however, hard work, which I hope to see performed by the cheap steamboats which now ply so plentifully up and down the Thames. *James Cuthill, Camberwell, The Gardeners' Chronicle, March* 8, 1851.

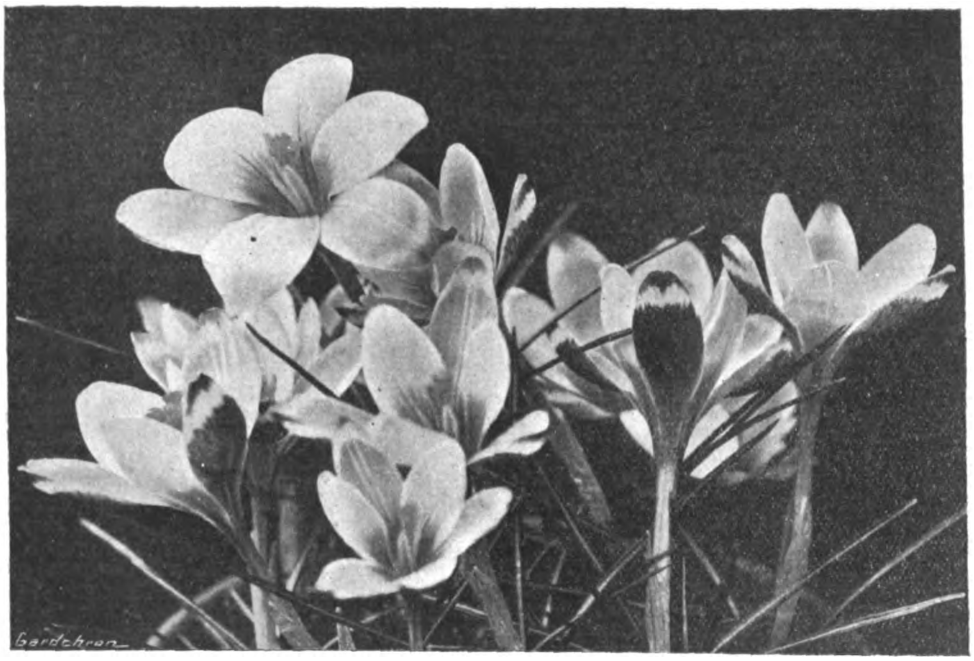


FIG. 78.—CROCUS SIEBERI VERSICOLOR MAJOR.

R.H.S. First-Class Certificate, February 23. Flowers white, with orange base and chocolate markings on the outer segments, Shown by E. A. Bowles, Esq. (see p. 161.)

Trial of Aquilegias at Wisley.—The Royal Horticultural Society will carry out a trial of Aquilegias in its gardens at Wisley during the next two seasons. A packet of seed of each variety to be tried should reach The Director, R.H.S. Gardens, Wisley, Ripley, Surrey, on or before March 27, 1926.

New Allotments at Twickenham.—The Twickenham District Council has purchased for £225 per acre, sufficient land adjoining the northern boundary of the Rugby Football Union Ground, in Whitton Road, Twickenham, to provide fifty-two allotments of ten poles each and two smaller plots. It was decided to name them the Queen's Bridge Allotments.

Appointments for the Ensuing Week.—Sunday, March 7; Wakefield and North of England Tulip Society's meeting. Monday, March 8: United Horticultural Benefit and Provident Society's annual meeting. Tuesday, March 9: Royal Horticultural Society's Committees meet (two days); Jersey Gardeners' Society's meeting. Wednesday, March 10: Glasgow and West of Scotland Society's lecture; Wimbledon Gardeners' Society's meeting; Crowthorne Horticultural Society's lecture; British Mycological Society's Council meeting. Friday, March 12: Royal Horticultural Society of Ireland meets; Orchid Club meeting.

Publication Received.—*Plants from Seed*, by A. J. Macself. Thornton Butterworth, Ltd., 15, Bedford Street, Strand. Price 6s. net.

The Week's Work.

THE ORCHID HOUSES.

By J. Collier, Gardener to Sir Jeremiah Colman, Bart., Gatton Park, Reigate.

Odontoglossum.—The Mexican Odontoglossum citrosmum is starting into new growth, but the plant should still be kept on the dry side, for if water is given too freely at this season it usually fails to flower. Immediately the flower scapes appear in the centre of the new growths, the plant should receive more generous treatment in watering, and be afforded an increase of atmospheric moisture. The flower spikes will make rapid progress, and the pseudo-bulbs that have become somewhat shrivelled will quickly regain their normal state of plumpness. O. grande and O. Insleayi should still be resting in the intermediate or the warmest part of the Odontoglossum house. These plants will require little or no water until growth becomes active. Many Odontoglossums of the crispum and Pescatorei type, together with the numerous hybrids that occupy the cool division are in their most vigorous stages of growth. Their new pseudo-bulbs are forming, and it is necessary that great care should be taken for them to be well-developed and matured.

Re-potting.—The necessary re-potting of the main bulk of these Orchids is usually done during September, but any plants that require a larger pot may, if new roots are pushing from the base of the current growth, be attended to now. The plants will be benefited by a liberal supply of fresh air, which should be admitted through the ventilators on the side of the house most sheltered from the wind.

Damage by Slugs.—Many Orchids are developing their flower spikes, and when of sufficient length the latter should be neatly staked. Search night and mornings for slugs, which are very destructive to the young, succulent flower spikes. Lettuce leaves or damp bran placed among the plants form excellent traps.

Sophronites.—The glowing scarlet Sophronitis grandiflora has been blooming for some time past. The flowers are produced from the partly-developed pseudo-bulbs, and soon after the blooms are removed fresh soil may be afforded the plants, if necessary. Frequent root disturbance is not desirable if the compost is in a sweet condition. When fresh rooting materials are necessary they should be applied so soon as new roots begin to develop from the base of the young shoots. Shallow Orchid pans with wire handles attached for suspending them are the most suitable receptacles, and they should be well-drained, as S. grandiflorum requires only a thin layer of compost, which should consist of Osmunda fibre and Sphagnum-moss. The plants grow best when suspended from the roof rafters of the cool house, and should be afforded sufficient water to maintain the Sphagnum-moss on the surface in a green, healthy condition.

FRUITS UNDER GLASS.

By T. Pateman, Gardener to Sir Charles Nall-Cain, Brocket Hall, Hertfordshire.

Pot Vines.—These vines will need attention in stopping and tying the young laterals. If space is limited the laterals should be pinched at the first joint beyond the bunch, allowing no more growths to extend than space for their full development permits. Perhaps the two most popular varieties for early cropping are Black Hamburgh and Foster's Seedling. Both these Grapes are very free in starting into growth, and both set their berries well, but it is always advisable to assist fertilisation by artificial means either by using a rabbit's tail or by drawing the hand lightly over the bunches. Tapping the wires on which the vines are trained two or three times daily will also help to disperse the pollen. So soon as it is noted that the berries are formed they should be thinned lightly and thinned again after a week or ten days have elapsed; it will then be seen which are the best berries to retain. Weak stimulants may be given the roots on frequent occasions, and nothing is better than liquid manure made from farmyard dung. At a later date a concentrated fertiliser may be used. After the berries are thinned the minimum temperature should not fall below 60°, with a rise of 10° or more on bright days. Fresh air is most beneficial to the vines, and it should be admitted whenever the outside conditions are favourable.

Pot Figs.—Fig trees in pots that were started into growth early need attention in stopping and disbudding the shoots. Trees grown in pots should be stopped at the fifth or sixth leaf, and the work should be done gradually so as not to check the development of the early fruits. The growths should be fully exposed to sunlight and air, which may necessitate thinning them. The Fig, when in active growth should not lack moisture at the roots, and frequent applications of weak liquid manure are very beneficial to growth. Maintain a minimum temperature of 60°, with a rise of 10° or more by day.

Late Vines.—If not already done, the late vinery should be washed down and the walls lime-washed, as advised for the early vinery. When this work is completed the house may be closed, and at this stage a little fire-heat may be used until the buds commence to burst; care is needed not to overheat the pipes or the growth will be weak. A night temperature of 50° will suffice, with a rise of 10° or more during the day.

PLANTS UNDER GLASS.

By John Coutts, Assistant Curator, Royal Botanic Gardens, Kew.

Achimenes.—These plants are useful for furnishing the cool greenhouse during the summer and should now be started into growth. Place the rhizomes in shallow seed boxes, and cover them with leaf-soil and sand. They will soon start into growth in a moist atmosphere and a temperature of 60°. When they have made about two inches of growth they should be arranged in pots or pans, placing the rhizomes from three inches to five inches apart, the distance varying according to the variety; the strong-growing longiflorum varieties require plenty of room. If pots are used they should be well drained, as Achimenes are not deep-rooting plants, and on the whole pans are best suited to their cultivation. Some of the more slender-growing varieties are excellent for filling hanging baskets, A. coccinea being especially useful for this purpose. Although Achimenes are best grown in a temperature of 55° to 60° in their younger stages, they should be accustomed to cooler conditions gradually, so that by the time they have reached the flowering stage they may be transferred to an ordinary greenhouse. Achimenes grow well in a light, rich compost, with free drainage. The shoots should be supported neatly as they require it with suitable stakes. The plants are very subject to attacks of Begonia mite and white fly, both of which pests must be guarded against.

Erythrina Crista-galli.—This handsome plant is very useful for conservatory decoration, and where large plants have been stored dry for the winter they should now be placed in a greenhouse and given a thorough soaking at the roots. If it is desired to increase the stock, cuttings may be secured when the young growths are three to four inches in length. Insert the cuttings singly in small pots; they will root readily in a close case furnished with slight bottom heat. A stock may also be raised by means of seed. With young stock, care must be taken to not dry the plants off too much for a year or two during the winter; not until they have made a good woody rootstock is it safe to dry them off for the winter. This plant should be grown in perfectly cool conditions and be given copious supplies of water at the roots during the growing season.

Begonia Gloire de Lorraine.—This popular Begonia and its several forms should be propagated from cuttings so soon as suitable shoots are available. Early-rooted plants intended to be grown as large specimens should be potted as they require it; the variety Mrs. Petersen is rather slow-growing, and where large plants are required it should be grown on for a second year. It is a good plan to insert cuttings of this variety during November.

THE KITCHEN GARDEN.

By F. Streeter, late Gardener to Major Albert Pam, Wormley Bury, Broxbourne.

Cauliflowers.—Two sowings of Cauliflower seeds will be necessary this month, allowing an interval of a fortnight between each sowing. All the Year Round, Early Giant and Autumn Giant are excellent varieties for present sowing. Prepare sufficient sound boxes and fill them with soil of an open texture. Cover the seeds with finely-sifted burnt earth, place the seed boxes in a cold frame and admit plenty of fresh air. The earlier seedlings are ready for pricking out into cold frames near the glass or in boxes. Give sufficient water to keep the soil moist, stir the surface and dust it with soot. Grow the autumn-sown plants in frames as hardy as possible.

Onions.—The moment the ground can be got into proper condition sow Onions in the open. Rake the surface evenly and dust the land liberally with dry wood-ash and soot. Draw very shallow drills, one foot apart, and sow the seeds thinly, just covering them with soil. Rake the surface neatly. Leave an alley between every ten rows for convenient working, and label each variety, stating the date of sowing. Number the rows, and record where the seed was obtained. This bed should be a feature of the kitchen garden throughout the summer.

Peas.—The early varieties sown in boxes and thoroughly hardened are ready for planting out on a warm border, the soil of which was prepared during the winter. Allow plenty of space between the rows; at least one foot more than the height of the variety given in the catalogues. I find it an excellent plan to plant four rows of early Potatos between rows of Peas. Transplant the Peas very carefully, stake them as the planting proceeds and cover them with netting. Place Spruce boughs on either side of the rows to protect the plants from cold winds. Make weekly sowings of Peas to maintain a succession. Select the varieties for the various sections, and give preference to marrowfat sorts.

Lettuces.—The seedlings of the early sowings are ready for pricking off. Admit air daily to those growing on hot-beds, and damp over the plants before closing the frames early in the afternoon. These plants mature very early. Make frequent sowings to meet the demands of the establishment, and vary the varieties, both of Cabbage and Cos types.

Radishes.—Where Radishes are in constant demand small quantities of seeds should be sown in frames once a fortnight. Just cover the seeds and keep the frames close. Radishes are usually ready for pulling in twenty-one to twenty-eight days from the date of sowing.

HARDY FRUIT GARDEN.

By W. Auton, Gardener to Viscount Elveden, Pyrford Court, Woking, Surrey.

Grafting.—The top-grafting of old Apple and Pear trees is a convenient and quick way of changing the crop of any tree which is giving worthless or unsatisfactory fruits. The actual time chosen will depend a good deal on locality and the nature of the soil, and the operation may be carried out any time during the next few weeks. The point to watch is that the stock should be in a active state, and immediately this is evident, the grafts, which have been heeled in under a north wall and which still show no signs of swelling their buds, should be inserted. This factor of the buds of the scion remaining dormant till the last moment is an important one, hence, when stock-activity is evident the operation should be completed. Trees intended for grafting will have been headed back some time ago, but a fresh, clean cut should be made for the reception of the graft. The methods of grafting are numerous, but the success of all methods depends on the principle of the perfect contact of the inner barks of stock and scion. For old stocks crown-grafting is probably the most satisfactory method owing to the difference in size of the stock and scion, but when the stocks are of medium or small size, whip or splice grafting is suitable. Favourable weather should be chosen for the operation so that the work may be carried out expeditiously. Having prepared the stock, select clean, healthy shoots bearing two or three buds, for the grafts, cut them as required, bring the two freshly cut surfaces together, bind them with raffia and encase the seat of union with a fairly thick covering to ensure exclusion of air. Grafting wax may be used, but well-prepared clay, with which a little chopped moss may be mixed is equally serviceable. This should be well moistened as the ball is built around the graft, and to prevent cracking it is a good plan to encircle the ball with moss, which may be kept moist by spraying during periods of dry weather

Protecting Fruit Blossoms.—The growth of vegetation generally has been surprisingly rapid during the past ten days, and where fruit trees on walls have not already been protected this should be done early during the period of flowering. Whatever type of material is used for this purpose it should be fastened securely so that it cannot be blown about in windstorms, or much damage may ensue to trees and buds. Anything heavier than netting should be removed every morning, while if netting is used it should be hung free of the trees so that one can pass behind it for pollenating the blossoms. The branches of Spruce and other evergreens are frequently used for the protection of fruit blossoms, but if laid directly on to the walls they are a source of danger to the trees and often result in the loss of many buds. Such material makes very useful protective screens, however, if tied to roughly-constructed wood trellises provided with arms to keep them at a short distance from the wall. These may easily be moved in the mornings and evenings, and except where canvas or tiffany blinds are fixed they make the most efficient form of protection that can be employed. Apricots, Peaches, and Nectarines are the first fruits to open their flowers, and should receive first attention; when these fruits have set the protective material may be used for Pears and Plums on walls.

THE FLOWER GARDEN.

By F. C. PUDDLE, Gardener to LORD ABERCONWAY, Bodnant, Taly-Cafn, North Wales.

Primula rosea.—This early-flowering Primula has commenced its season's growth and is sending up its flower spikes. The roots, which always grow near the surface, usually become exposed during the course of the winter, and they will be benefited by a top-dressing of leaf-soil or peat. The general top-dressing of the rock-garden, however, will be better delayed until the end of the present month, for it is a mistake to do this work too early, as the majority of alpines resent wet soil about their collars during the winter.

Dahlias.—If it is found necessary to increase the stock of any varieties of Dahlias, the tubers may be started into growth now in a moderately warm house. When the young growths have made two joints they should be taken off as cuttings with a small heel, and inserted in small pots containing equal parts of loam, leaf-soil and sand. If the cuttings are placed in a close frame they will form roots readily. It will be found the better plan to pot the roots separately rather than box several varieties together, as the danger of mixing the sorts is thus obviated. After the required number of cuttings has been taken, the old plants may be removed to cooler conditions and grown on without further check. If space in a late Peach house or other cool house is available, those tubers which are not required for propagation purposes may be potted in readiness for starting. This work may be done by the flower garden staff during wet weather. Large Chrysanthemum pots may be used as they will be available in time for the final potting of the Chrysanthemums. No water should be applied until the plants show signs of growth; they may then be encouraged to make steady and sturdy growth, which will be so advanced by planting time that the plants will be almost at the flowering stage. The length of the flowering season of Dahlias is governed by autumn frosts, and it naturally follows that the earlier the plants can be had in flower the longer will be their period of beauty.

Roses and Climbers.—The pruning and training of Roses and other plants on walls may now be proceeded with, and where these have been attended to regularly, the work is soon accomplished, but where they are overgrown or have been neglected it is a tedious process, and a great deal of cutting out must be done to reduce them to a satisfactory condition. A mixed collection calls for almost constant supervision, as the different kinds and varieties should not all be treated alike. Clematis Jackmanii and its varieties should be pruned to a bud that is starting into growth, and, as a rule, the greater part of last year's growth removed, but Clematis montana, C. Armandii, and others which flower early in the season should not be pruned until their flowering season is over, when any necessary thinning and shortening of the shoots should be attended to. Ceanothus Gloire de Versailles should be pruned hard to provide a bountiful display of flowers in autumn, but the pruning of the evergreen members of Ceanothus, which include C. dentatus and C. rigidus, should be deferred, as their season of flowering is spring and early summer, and pruning now would mean spoiling the display.

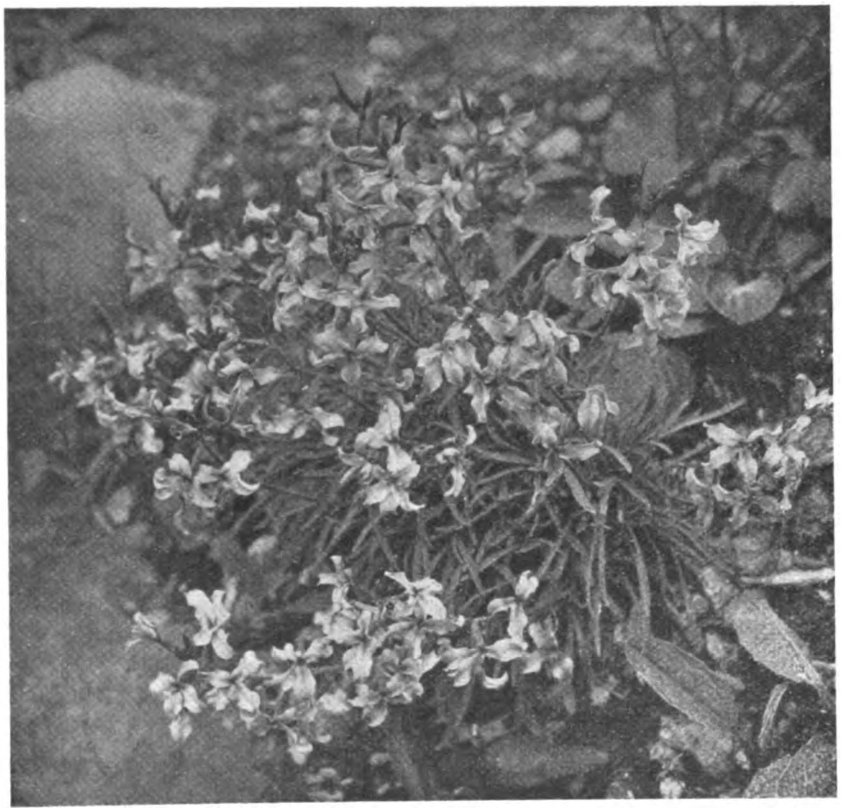


FIG. 79.—MATTHIOLA VALESIACA.

(see p. 170.)

FOR NORTHERN GARDENERS.

By A. T HARRISON, Gardener to the MARQUIS OF AILSA, Culzean Castle, Maybole, Ayrshire.

Sowing of Vegetable Seeds.—Take every opportunity, when the ground is dry, to sow seeds of the various members of the Brassica family in order to have plants ready for setting in their permanent quarters by the end of May or early June. The ground should be well stirred, afterwards consolidated by treading, and made level before drawing the seed lines, which should be twelve inches apart and about one inch deep. Do not sow too thickly, as good, sturdy plants are not obtained in that way; it is better to sow an extra line or two of each variety than to overcrowd the seedlings. When all are sown and the surface made smooth with a rake, it is sometimes necessary to protect the seed-bed from birds. To ward off these and other enemies, I find that a good dusting of lime is very effective, repeating the application frequently during showery weather. Other vegetable seeds which should be sown now include Leeks, Onions, Parsnips, early Carrots, Lettuces, Spinach and successional sowings of Peas and Beans.

Cucumbers and Melons.—Where full crops of Cucumbers and Melons are required from July onwards, seeds should now be sown, and where a temperature of 60° to 70° may be maintained in the house they may be grown to perfection. The seeds should be sown singly in small pots filled with sandy loam, which should be thoroughly moistened before the seeds are inserted. Plunge the seed-pots to their rims in sand or cocoanut fibre in a propagating case. Any subsequent watering before the seeds germinate should be with a view to keeping the plunging materials moist; guard against an excess of moisture in the pots. So soon as the young plants are above the soil they should be placed in a light position secure from cold draughts. When large enough they should be transferred to larger pots, using good loam mixed with sand and wood ash to render it porous.

FLORISTS' FLOWERS.

THE BORDER CARNATION IN SPRING.

THOSE who grow border Carnations in the open and not under glass may be divided into two classes: those who leave their plants out in the open the whole year; and those who pot the layers in the autumn, keep them in a cold greenhouse or frame during the winter, and plant them out in their flowering quarters in the second half of March or early in April. The former method is probably the better of the two, for the border Carnation is a true perennial, and will withstand successfully the vagaries of an English winter.

Autumn-planted layers have the advantage that they are well established when the spring arrives, thus their development when growth begins continues unchecked until the time of flowering. Against this the advocate of protection in winter claims that casualties from waterlogged soil, cats and other causes are prevented if the plants are kept in pots until the spring. I always treat border Carnations as hardy subjects and plant my layers in the autumn in the open in the places where they are to flower. It is an easy matter to pot a few extra plants to fill any vacancies which may arise through failures, and I think that this method is to be preferred.

Those who have kept their plants in pots during the winter will soon be transplanting them into the open, and it is the subject of their treatment after that operation has taken place that I propose chiefly to discuss.

No matter whether the plants have been in the open all the winter or are ready to be put out, a liberal dusting of lime will be most beneficial to the soil, and its use cannot be too strongly advocated, for border Carnations are lovers of lime, and will eagerly assimilate it.

When all the stock is planted the Dutch hoe should be used diligently on all favourable occasions. Apart from keeping down weeds hoeing, by loosening and turning over the surface soil, aerates the ground and assists in keeping it sweet and friable.

As the plants progress, the need for tying and staking will become apparent and should not be delayed. Light canes or sticks, three feet long, form very satisfactory supports and, if it is possible to put these in position in the spring, so much the better, for there is then less chance of damaging the young roots of the growing plant. About the middle of May, it will be essential for the plants to have some support, and, if the grower is content to adhere to the old method of tying with raffia, he will find the operation laborious. There is, however, no need to use raffia, rings made from galvanised wire being preferable and more quickly manipulated. These rings may be purchased from the horticultural sundriesmen at about three shillings and sixpence per thousand, or the energetic gardener can make them at home by winding thin, galvanised wire around a broom handle and then, after the resulting spiral has been removed, cutting through each successive turn with a pair of pliers. It is the work of a moment to open a ring, slip it around the plant and stick and close it again.

As the plants progress, little attention will be needed beyond the use of the Dutch hoe to stir the soil, especially after rain, and tying either with raffia or using rings as this becomes necessary. When the flowering season is near at hand the grower will be well advised if he gives his plants an occasional watering with a weak stimulant made from old soot, as this will be found very beneficial to the plants and at the same time, enhance the colours of the flowers. Peruvian guano has been recommended for this purpose, but I know of nothing better than an application of the liquid obtained from a tub in which a bag of old soot has been suspended for a week or two. A weekly application will suffice, and the liquid should be applied after being well diluted with water.

When the flower buds have formed, all the small ones which cluster at the base of the crown bud and large side buds should be rubbed out, and it is also advisable to remove some of the side buds, too, if flowers of the highest quality are required. Much depends upon the variety and also upon the inclination of the grower, but it is a mistake to leave a number of small buds when by their removal the quality of the remaining flowers is greatly enhanced. However, as I have stated, disbudding is a matter for the grower to decide for himself, and, after his first year's experience, he will know what suits him best.

With regard to layering, I would emphasize the foolishness of many growers who wait until the middle or end of July before commencing to layer their plants, simply because they have been told that it is best to commence then. The plants should be layered directly the side shoots are sufficiently developed, even if the plants have not flowered. By this means plenty of time will be available to do the work, which is usually crowded into a few short weeks, and, in addition, the plants will be well advanced in the late summer, and have ample opportunity of developing strong roots by the time winter arrives. *Angus Bennett.*

ALPINE GARDEN.

MATTHIOLA VALESIACA.

THE members of the Stock family are mainly lowland plants, growing in warm and dry localities. Matthiola valesiaca (Fig. 79) is an exception, for it is found wild in the Valais, from which it takes its specific name, growing high up on the rocks of the Simplon, and about Binn amongst other places.

It is closely related to the better-known M. varia which is found in various parts of southern Europe. Some authorities class it as a variety of the latter species, from some of the forms of which it is difficult to distinguish. I have also had plants under the name of M. pedemontana, in which I fail to find any difference from M. valesiaca, indeed, it was illustrated in *Gard. Chron.*, April 23, 1921, under the former name.

M. valesiaca is a perennial with a somewhat woody rootstock: This is of spreading habit, making its way underground along crevices and amongst loose stones. From these are produced tufts of obtuse, linear leaves, covered with glandular and stellate hairs, giving it a hoary appearance. The stems are erect, with a leafy base, and grow from four inches to one foot high, according to soil and situation.

In May and June the reddish-violet or mauve flowers are produced in numerous racemes, making it an attractive plant for the rock garden. It is quite hardy when planted on a sunny ledge or in the crevices between stones and old walls. The drainage should be perfect, as with excess of moisture it damps off in the winter. Seeds are produced freely and cuttings also root readily in the summer, while it may also be propagated by means of root-cuttings in the autumn. *W. I.*

MAZUS PUMILIO.

THIS native of New Zealand and Australia has both the charms of distinctness and of beauty of flowers so that its failure to attain due recognition is surprising. Some state that the plant is a little tender, yet in the greater part of the British Isles, at least, it withstands a more than average winter without injury.

It is of creeping habit, spreading underground. I believe that some losses are caused by growers desiring to restrict its increase, instead of allowing the plant to spread.

The leaves are small, hairy, of a pleasing shade of green, and rarely rise more than one inch above the surface. The flowers which appear in summer, are distinct in form and are of violet colour with a white centre. The plant is easily increased by means of division in spring or immediately after flowering.

The cultivation of M. pumilio calls for little comment. It is said to thrive in ordinary loam, but a better medium may be formed by adding one part of sand and one of leaf-mould to loam. A sunny, somewhat sheltered spot should be chosen, but not too much exposed to the morning sun in early spring. This Mazus is an excellent plant for the rock garden, where, although it needs a dryish, well-drained place, it is all the better for occasional waterings in dry weather. *S. Arnott.*

ACAENA BUCHANANII.

BUCHANAN'S New Zealand Bur has for long been one of my favourite carpeting plants. It covers the ground closely and there are few plants which serve better as a carpet for choice little bulbs than this and other members of the genus Acaena. It cannot boast of brilliancy in its flower heads, being far inferior to A. microphylla in this respect, nor can it well claim supremacy over that species in the point of the colour of its foliage. It has a beauty quite different from A. microphylla but is as charming a plant. The rounded flower-heads are bristly and yellowish, the leaves a delightful grey-green. As a carpe for choice spring or autumn Crocuses or for big Meadow Saffrons such as Colchicum Bornmuelleri or C. speciosum album, it is superb, the delicate cups of the Crocus or the bolder flowers of the autumn Meadow Saffron looking well associated with the foliage of the Acaena, and preserved by its carpeting mass from splashes of soil cast up by the rain. It is not such a deep rooter as to be injurious to the bulbs or corms of the other plants.

Acaena Buchananii may be increased almost indefinitely by division, while seeds are also obtainable. In the course of a few years a plentiful stock may be obtained, and the plant will serve usefully for other purposes than that indicated above. For planting in the crevices of stone paths or steps, or for clothing a bare bank, A. Buchananii is invaluable, while it withstands a good deal of ill-usage, being even employed in some places as a kind of "supplementary door mat!" It will grow in sun or shade and in almost any kind of soil. *S. Arnott.*

BULB GARDEN.

BEDDING HYACINTHS.

WHILE the Hyacinth can hardly equal the Tulip as a bedding plant it has some valuable attributes which make it useful for bedding purposes, not the least of these being its early flowering period and the comparatively long season of display. Somewhat more expensive than Tulips to purchase, they are not so widely grown, but if the right varieties are chosen and attention is given to their cultural needs they provide a display at an early period of the year commensurate with the outlay involved.

There are certain varieties, as all who have had experience in growing Hyacinths in the open know well, that however beautiful they are under glass, are comparatively worthless when planted out, hence the field of choice is much more limited than is the case with Tulips. Nearly all the varieties with flowers of an intermediate shade of colour are washy and ineffective if they are, as is usually the case, exposed to rough weather when in flower, therefore the desirability of selecting those only which have flowers of a decisive hue, such as bright pink, rosy carmine, or deep blue. Yellow varieties, however good they may be under glass, are seldom satisfactory in the open, and produce at the best only a moderate cream, hence in planting schemes where light shades are desirable it is preferable to use pure white sorts.

Hyacinths are very suitable for planting in formal beds in sheltered positions near the dwelling house, as their rich display and earliness in flowering make them peculiarly attractive for such positions. The carpeting of beds filled with early-flowering bulbs is an excellent plan and makes the beds much more interesting during the whole of the winter. It is not, however, so easy to carpet beds filled with Hyacinths as it is those filled with Tulips, as the former have very little bare stem, and such plants as Silene and Myosotis would completely hide the flowers. There are, nevertheless, a few dwarf-growing plants that are eminently adapted to this purpose, and amongst them may be mentioned Sedum glaucum, S. Lydium, Antennaria tomentosa, A. candida and Saxifraga moschata.

The employment of carpeting plants naturally entails some extra labour, but as the Hyacinths are in most instances planted in beds in full view of the windows, and the Hyacinth foliage covers very little of the ground it is essential that the soil should be partially hidden.

The plants mentioned may be increased very easily, and by their use some saving in bulbs may be effected, as wider planting can be practised than would be possible if the soil is left perfectly bare.

When the flowers have passed and it is necessary to prepare the beds for summer bedding, the bulbs may be lifted carefully and planted closely together in a sunny border to finish their growth. The carpeting plants may be broken up and planted in any open position in the reserve garden, with the exception of the Saxifraga, which should be given partial shade. *A. P. C.*

ORCHID NOTES AND GLEANINGS.

ORCHID HYBRIDS.

During 1925 the lists of hybrid Orchids published in *The Gardeners' Chronicle* included some three hundred novelties, a number slightly under the average, but sufficient to prove the great interest taken in this phase of indoor gardening. While the majority of the raisers were well-known Orchidists, both amateur and professional, several new raisers have come forward. The hybridist's object is to produce flowers larger in size, perfect in shape, more beautiful in colour, and in other ways excelling the best features of the species used as parents. The greater number of the showier Orchids have been used as parents, and the operators have cleverly selected the most promising species for primary crosses.

Of Cattleyas nearly three hundred direct crosses with Cattleya Dowiana have been made, and over 130 crosses with its first progeny, C. Hardyana, which enters largely into the whole section of showy, hybrid Cattleyas and Laelio-Cattleyas, most of which, if their history is traced, have C. Hardyana as a prime ancestor. This has played a great part in influencing the size, form and colour of the hybrids, and although the colour of its sepals and petals is seldom reproduced in them, it gives, by judicious crossing, a large number of pure yellow-petalled hybrids, and pure white-petalled forms, either albinos, or with large and richly-coloured labellums. The influence of C. Dowiana illustrates what may result from using a pure species as a parent.

Some thirty-five species of Cypripedium have been crossed and inter-crossed, resulting in nearly three thousand beautiful and distinct hybrids. These Orchids are the chief subjects in some noted amateurs' collections, and when the large size, beauty and wonderful lasting properties of these flowers are considered, they are worthy of inclusion in all collections. C. insigne varieties lead with about 140 direct crosses.

There are still large numbers of species as yet unused as parents, and a revival of Orchid importing is desirable, not only on account of the beauty of many species, but to extend the work of the hybridist. *J. O'B.*

CATTLEYA REMY CHOLLET.

Messrs. Sanders, St. Albans, send a noble flower of their latest novelty in Cattleyas which they consider the best Cattleya they have yet raised. C. Remy Chollet was obtained by crossing C. Monarch (Empress Frederick × Trianae Monarch) and C. Trianae ignea. The result is a large-flowered hybrid, with a C. Trianae base, the C. Dowiana in C. Empress Frederick giving extraordinary width and richness of colour to the lip.

The sepals and petals are silver-white with a delicate blush rose shade. The petals extend eight inches from the point of each and are nearly four inches in width at the broadest part. The tube of the lip is coloured like the petals and much crimped at the margin. The front lobe of the lip is rounded and broadly displayed; it is rich ruby purple with a chrome-yellow disc on a white ground in the centre.

INDOOR PLANTS.

RHODODENDRON LINDLEYI.

Rhododendron Lindleyi is a native of Bhotan, and although first introduced in 1864, is very uncommon in gardens, probably because of its unsatisfactory habit of growth rather than the fact that it requires the shelter of a cool greenhouse. The supplementary illustration shows the beautiful white, wax-like, aromatic flowers, which are carried in terminal umbels, the number of flowers varying from three to six. The corolla tube is usually about three inches long, and the limb three to four inches broad, but the size of the flowers varies considerably according to the health of the plant. The flowering period is usually towards the end of March or during April.

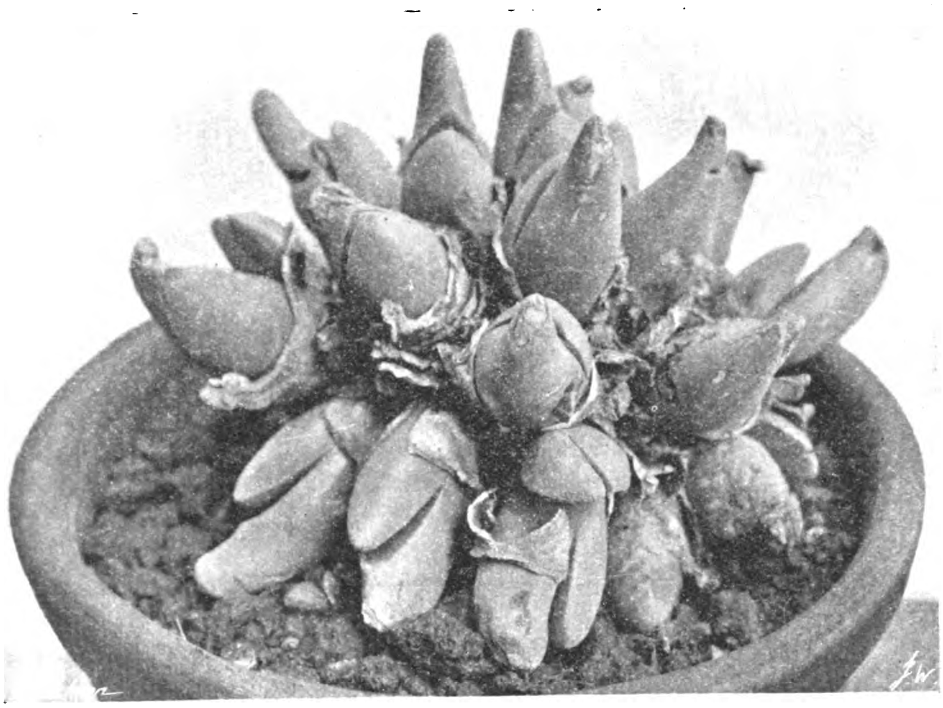


FIG. 80.—GIBBAEUM (MESEMBRYANTHEMUM) GIBBOSUM.
(From a photograph: see p. 172.)

The leaves, which are produced at the end of the straggling shoots, are from three to four inches in length, coriaceous, glaucous on the underside, with small brown dots. This Rhododendron appears to be mid-way between R. Dalhousiae and R. Nuttallii, and, like them, is no doubt semi-epiphytic, which accounts for their more or less unsatisfactory behaviour under cultivation. They succeed best when planted out in a well-drained border, in a compost of light loam, and lumpy, fibrous peat, to which has been added clean, sharp sand and some fairly large pieces of charcoal.

In the Himalayan House at Kew R. Lindleyi grows about four feet high, the bare, straggling shoots being terminated by a few leaves, and flower buds in their season. The illustration represents a plant growing in the Himalayan House at Kew and is reproduced from a photograph by Mr. C. P. Raffill.

CUPRESSUS FUNEBRIS AS A POT PLANT.

As in most other species of Cupressus this plant has two types of leaves, the adult and juvenile foliage. The juvenile plant produces whorls of three or four awl-shaped leaves of a sea-green colour, soft and feathery, contrasting charmingly with the older red-brown stems. Later, as the plant attains age, it assumes the flattened growth and close, scale-like leaves of the mature Cypress, and bears fruits freely; but it is then far less valuable as a decorative plant.

Specimens varying from a few inches to as many feet in height are grown for market, their beauty and lasting qualities rendering them valuable for decoration.

This Conifer is easily propagated from cuttings inserted in sandy soil and placed under a bell-glass in July: failing such convenience a well-drained seven-inch pot, half filled with sand and covered with a sheet of glass, will suffice. Water the soil sufficiently to keep the cuttings in a fresh state. The bell glass may be white-washed on the sunny side, or the pots may be stood on the shady side of a wall. When rooted, the cuttings should be potted singly and established before the advent of winter. The shelter of a cold frame will, in the southern counties, be sufficient, but growth will be more rapid in a greenhouse.

When the pots are well-filled with roots the latter may receive a stimulant, but not so much as to cause excessive growth.

For some reason, perhaps because of its awl-shaped foliage, this Cypress is often sold as a Juniper, and it is not uncommon to find it labelled Juniperus bermudiana, a name belonging to a totally different plant; its common name is the Chinese Weeping Cypress.

In Sussex, and doubtless in several other counties, it will succeed in the open and may, when too large for the greenhouse or conservatory be planted out in a sheltered corner, where it may either be allowed to grow into a small tree or be restricted to a small size by careful pruning. In its native habitat, Central China, this Cypress will attain a height of seventy feet. *J. Comber.*

MESEMBRYANTHEMUM.

(*Continued from p.* 156).

(5.—Gibbaeum, Haw.)

Tufted, succulent perennials, stemless or with prostrate branching stems. Each growth consisting of an ovoid, obovoid, subglobose or obliquely subglobose body, slightly notched or distinctly and equally or unequally lobed at or just below the top, or transversely fissured or more usually of an obliquely ovoid, oblong-ovoid or subcylindric body with a fissure on one side of it resembling a closed or slightly open mouth, formed of two opposite, equal, subequal or very unequal leaves more or less united into a solid body, or the unequal leaves more widely separated and spreading, but still united at the lower part. Flowers pedicellate, bractless, with the ovary usually exserted from the fissure. Calyx 6-lobed down to the top of the ovary. Petals numerous, free. Stamens numerous, erect. Stigmas 6–7, plumose or filiform. Ovary inferior, 6–7 celled; placentas on the outer wall or floor of the cells. Capsule broadly obconic, convex at the top, with 6–7 valves and cells; valves with their expanding keels diverging from near their base and shorter than the valve, but with broad, membranous, obtuse marginal wings produced nearly or quite to the tip of the valve. Cells roofed with flexible membranous cell-wings, without a tubercle at the opening. Seeds numerous in each cell, very small, ovoid, with a nipple at one end.—Haworth, *Revis. Pl. Succ.*, p. 104, and N. E. Brown in *The Gardeners' Chronicle*, 1922, vol. LXXI, p. 129.

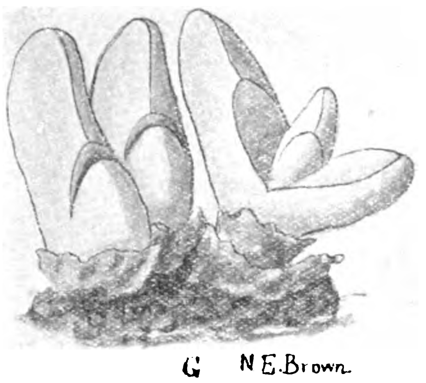


FIG. 81.—GIBBAEUM GIBBOSUM.
(From a drawing.)

Species 11, natives of the Karoo region and apparently chiefly of the Klein (Little) Karoo of South Africa, the type of the genus being G. pubescens, N. E. Br.

The name is derived from the Latin, *gibba*, a hump, in allusion to the prolongation into a hump of the back of the larger of the two leaves of which the body or growth is composed, forming what appears to be the apex of the growth.

This genus is easily distinguished from Mesembryanthemum and all other allied genera except Conophytum by its peculiar vegetative character, and from the former by its stigmas, constantly 6-7-celled ovary, 6-lobed calyx, and the 2-edged pedicels of its less rigid fruit. From Conophytum (for which genus I formerly mistook one species whose flowers I had not seen) the free petals and the presence of cell-wings roofing the cells of the capsule, readily distinguish it.

My former account of this genus was published in *The Gardeners' Chronicle*, 1922, vol. LXXI, pp. 129 and 151, at a time when very little was known of it in Europe, and I had then seen no flowers of any species belonging to it. Since then one species has flowered here at Kew, and I am indebted to Dr. J. Muir for flowers of six other species that he has recently sent to me for examination, from which it would appear that the flowers of all the species of this genus exude a considerable quantity of nectar, which covers the whole surface of the top of the ovary and is also on the stigmas. I have also had more opportunity of studying some of the species under cultivation, the result being that I believe that Haworth's species as described there have not all been correctly understood. G. pubescens as there described by me is undoubtedly the plant Haworth called Mesembryanthemum pubescens. But with reference to his M. gibbosum, M. perviride and M. luteoviride, I am doubtful if these species are correctly understood in Europe. On p. 151 above quoted, I illustrated G. perviride and G. gibbosum. The plant I figured as G. perviride here reproduced (Fig. 81), I had cultivated for many years under that name, which I believe was the name sent with it from South Africa, and as it agreed fairly well with Haworth's description I accepted it as being correct. But the plant figured on the same page as being probably G. gibbosum, here reproduced (Fig. 80), although then so different in appearance and colour, has now developed into a plant identical in every respect with that I figured as G. perviride, and although I have not yet seen flowers of either I feel certain that they both belong to one and the same species. And so far as I can judge from Haworth's description, it is probably G. gibbosum, and therefore his M. perviride and M. luteoviride are still unknown species. I therefore propose to cancel my previous descriptions of these two species and replace them with translations of those given by Haworth. The description of G. gibbosum being correct so far as I can at present make it and taking into account that the figure and description of the growths (not the flower) of G. perviride merely represents the cultivated appearance of G. gibbosum, both figures being here reproduced (Figs. 80 and 81), those descriptions and figures must suffice for the present for all that is at present known to me of G. gibbosum. It is very unfortunate that the localities of numerous species described by Haworth are quite unknown, for had the locality where they were found been stated it would have enabled us with more certainty to identify some of the plants he described that are at present unknown.

Although Haworth's descriptions of these plants are vague, yet from his sectional characters of them as a group there can be no mistake as to the kind of plants he describes, for to the group or genus he assigns the following characters :—" Leaves opposite, an inch long, very stout, united almost to the middle, one abbreviated, gibbous, the other much enlarged at the apex and oblique. Calyx usually 6-fid. Corolla small, rubicund, flowering in winter and spring."

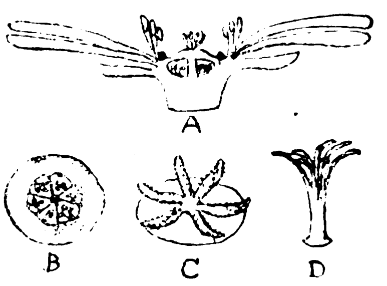


FIG. 82.—FLORAL STRUCTURE OF GIBBAEUM.
A. and B. Section through flower, and transverse section of ovary of Gibbaeum pubescens. C. stigmas of G. Muiri. D. stigmas of G. molle. All enlarged two diameters.

Fig. 82 is a diagram representing the floral structure of this genus, from which it will be noted that the stigmas of the various species vary very considerably in size and character, affording excellent specific distinction. All the figures are drawn to the same scale of being enlarged two diameters, so that it will be seen that the difference in the size of the stigmas is very pronounced. *N. E. Brown.*

(*To be continued*).

HARDY FLOWER BORDER.

DICTAMNUS CAUCASICUS.

Dictamnus caucasicus is one of the most useful plants for the hardy herbaceous border for it is attractive either in foliage or in bloom. A characteristic feature of the plant is that if a lighted match is placed below the inflorescence on a sultry evening in summer, a flash is observed which gives off a very pleasant odour and, strange to state, the ignition does not in any way injure the plant. This Dictamnus is perfectly hardy; it grows from two feet to two-and-a-half feet tall and produces reddish-purple flowers from June to August.

THREE GOOD CENTAUREAS.

Centaurea macrocephala is a fine plant for the middle or back row of the herbaceous border. The plant bears large heads of golden yellow flowers during July and continues in bloom to September. It grows five feet tall and is perfectly hardy. Another showy plant is Centaurea dealbata, a species with bright rose-coloured flowers and growing one-and-a-half feet tall. This Centaurea has showy silvery foliage.

Centaurea ruthenica, a Russian species with pinnate leaves and pale yellow flowers, attains a height of four feet and flowers from July to September. All three species thrive in ordinary garden soil.

PYRETHRUMS.

During the early summer and autumn, the single and double-flowered Pyrethrums contribute much to the beauty of the hardy flower border. Since Pyrethrum roseum, a Caucasian species, was introduced, many improved varieties of single and double types have been raised. Their yield of flowers is most prolific, and as decorative garden plants with the most brilliant of glowing colours and long flower stems they are extremely useful for furnishing cut flowers for house decoration.

Pyrethrums may be planted any time during the early spring or in early autumn, the former being the better time. They grow well in any moderately moist, rich, loamy soil, and in order to obtain the best results well-rotted manure should be incorporated with the soil which should be well-trenched and well-drained. Grow the plants in a sunny position.

When the plants are in flower bud during spells of drought, give the roots copious supplies of water. It is also beneficial to apply a mulching if the situation is a dry one, and, to prevent attacks of slugs, a dressing of coal ashes is desirable.

Pyrethrums are extremely hardy and not affected by sun or rain; they may be left undisturbed for two or three years, provided they receive an annual top-dressing. The elegant Fern-like, deep green foliage makes a most perfect setting to their stout, wiry, flower stems, which grow about two feet tall. The colour of the flowers range from snow-white to delicate pink and rose, through scarlet to the deepest maroon.

Though the natural time of flowering of these Pyrethrums is from May-June onwards, a very creditable display may be had during autumn, if the first flowers are removed when they are over. The varieties are so numerous that it would be invidious to attempt to give a selection; the following are only a few of the best :—Double white: Aphrodite, Argentine, Carl Vogt, White Queen Mary, Mount Blanc and White Astor.

Double blush to rose :—La Vestale, Madame Munier, Madame Patti, Paul Journu and Queen Mary.

Double crimson and scarlet: J. N. Twerdy, Lord Rosebery, Marquis of Bute, Progress, and Beauty of Laeken.

Pericles is a distinct, creamy yellow variety with paler guard petals, while Vance has cream flowers, prettily tipped with pink. The single varieties are much prized for cutting. A few of the freer-blooming sorts are Comet, crimson;

Countess of Leitrim, soft, rosy-peach; Edward VII, soft, rosy carmine; Elsie Gertrude, pink; General French, velvety-crimson; Hamlet, clear rose; Jubilee, crimson; Lady Knaresborough, soft blush; Langport Scarlet, glowing scarlet; May Robinson, clear rose-pink; Pink Pearl, delicate shell-pink; Warrior, carmine-purple; and Snow White, a large-flowered variety. *W. Logan.*

TREES AND SHRUBS.

FORSYTHIA SUSPENSA.

It is many years since this beautiful shrub was more beautiful in this district than it is at the present time. The clear-toned yellow bells impart a touch of brightness to a scene long darkened by winter.

The species is perfectly hardy near the south-western seaboard of South Wales, but it is hardy only in sheltered places in the North of England. Those who require a really decorative shrub should plant Forsythia suspensa in October or November next, subject to the geographical limitations above stated. It appreciates a good, well-drained soil. Those who have established bushes in flower now should prune them so soon as the flowers fade. Weak and badly-placed shoots should be removed first, afterwards cutting out some of the branches that have flowered. This treatment will enable the young growths to develop and ripen satisfactorily. *Geo. F. Copley. N.D.H., Cardiff.*

RHODODENDRON NOTES.

Judging from the number of well-plumped-up flower buds, the present year promises a fine display of Rhododendron bloom. The wet autumn of 1925 resulted in free growth late in the season with a corresponding formation of buds. During the dry spell experienced in June-July last year Rhododendrons suffered severely, and those newly-planted could only be kept alive by watering and mulching. From mid-July, however, they made excellent headway, as if benefiting by the retarding influence of the previous drought.

I find the variety Gill's Triumph is not hardy here (mid-Surrey), although it makes good growth and forms fine buds. Each winter these buds have blackened and dropped, evidently the result of frost.

The variety Cynthia is very susceptible to cold weather and behaves in a most noticeable way as the thermometer drops. The leaves droop to an acute angle and remain so until milder weather returns. The plant does not appear to suffer permanently, however, and blooms well each year. Bagshot Ruby is a great acquisition, its beautiful colour always exciting admiration. It has a dwarf, sturdy habit, and should be planted in the front of other varieties, or in the shrubbery. A pleasing combination is obtained here by planting Bagshot Ruby and Corona interspersed with varieties of Japanese Maples. The beautiful tints of the young Maple leaves blend well with the Rhododendron blooms, and by the time the flowers are over the fully developed Maple foliage has filled out, at the same time, affording welcome shade to the Rhododendrons during hot weather. In winter, again, the Maples are hardly noticeable, having lost their foliage, and the full beauty of the shining leaves of their companions is fully exposed to view.

The woodland R. ponticum is a mass of buds and as we have large clumps of this species, twenty feet high, they should be a glorious sight in spring. Many thousands of seedlings make the intervening ground a green carpet.

A debatable point that has come to my notice recently is, should the buds of newly-planted Rhododendrons be picked off? I have never practised it, nor do I think it advisable for the following reasons:—The plant has already gained the necessary energy to form its flower buds from the previous year's growth. It will bloom before growth is necessary for the ensuing year's buds. The plants are always lifted with a good ball of soil, full of roots, thus they receive no appreciable check to growth. If the dead blooms are picked off immediately after flowering there is plenty of time for the plant to grow and form flower buds for the following year, and lastly, why sacrifice a season's bloom for, at the most, a very slight gain in growth, which is likely to be stunted by a hot summer? I have heard it said that a fruit tree would not be allowed to fruit the first season, and that the same thing applies to Rhododendrons.

There is no analogy. The fruit of an Apple or Pear is draining the tree up to the end of the growing season; moreover, the fruit tree suffers a severe shock at moving and needs a whole season to become re-established. By picking off the dead flowers of Rhododendrons fruiting is prevented.

A number of Rhododendrons planted here in close proximity to large trees have been languishing for years, giving little or no bloom. A heavy mulch of decayed cow manure last winter has worked wonders; the plants are now full of good buds and should make a fine display this year.

I find, although heavy mulchings are necessary on light soils as here, it is unwise to place the dung near the stem, as a form of stem rot results, and we have lost one or two plants in this way. *R. G., Cobham, Surrey.*

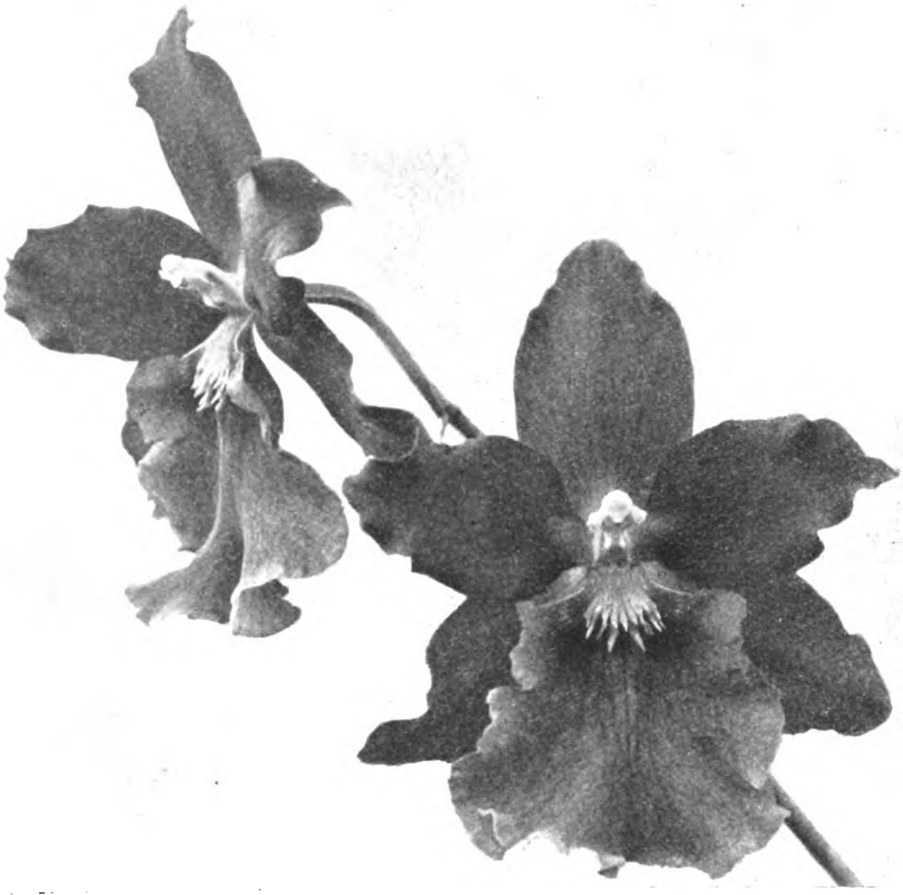


FIG. 83.—VUYLSTEKEARA MELBA.

R.H.S. Award of Merit, February 23. Flowers plum-purple with crimson shading. Shown by Messrs. Charlesworth and Co. (see p. 161).

FRUITING OF RIBES SPECIOSUM.

In his article on Ribes speciosum, *A. T. H.* Ayrshire, states that he has not seen fruits on his plants, and suggests that it rarely fruits in this country. At Bodnant, R. speciosum rarely fails to produce a good crop of its small red Gooseberries, which are of a rather strong flavour.

A. T. H. recommends that pruning should be performed "by the removal of the older wood so soon as the flowers are over." I would suggest that the check which would follow the removal of any quantity of wood at that time would tend to cause the dropping of any fruits which may have set, and this is probably a contributary factor in *A. T. H.'s* failure to secure a crop of fruits. The method of pruning we adopt in these gardens consists in thinning the growths to prevent over-crowding, and this is performed in winter, in common with other Gooseberries. *F. C. Puddle, Bodnant Gardens.*

SYCOPSIS SINENSIS.

This evergreen shrub from China is again producing its curious yellow flowers, and although these are not of a very showy character, the mere fact of the plant flowering during February should be sufficient to warrant its inclusion where a representative collection of shrubs is grown.

The flowers are composed, for the most part, of a large number of yellow stamens, enclosed in a brown, scaly bract, and they last on the plant for a considerable time. The dark green leaves are of a leathery texture, dull, not shining, and closely resemble those of some of the larger-leaved forms of Cotoneasters, particularly C. frigida, being from three to four inches long and sharply pointed. S. sinensis is quite hardy; it is a native of central China up to an altitude of 4,000 feet above sea level, and was introduced in 1901 by Mr. E. H. Wilson. *A. T. H.*

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CLASSICAL AND LEGENDARY GARDENS.

III.—THE GARDENS OF ALCINOUS.

EVERY ancient people had its poet, and every poet had a marvellous garden for his theme. The Hebrew had his Paradise, the Persians sang of the Rose and the nightingale, while the Greeks and Romans had their Gardens of Adonis, the Hesperides and Alcinous. These last have been celebrated in the story of the Argonauts, and especially in the *Odyssey*. Alcinous, the grandson of Poseidon, was the host of far-famed Ulysses, and heard from him the story of his wanderings. Like all the other mythical personages of antiquity he and his romance have been worked up in many ways by the exponents of the Solar Myth. Let us first hear the story, and then take the interpretation.

Alcinous, the fabled King of the Phæacians, had a beautiful daughter to whom Pallas appeared in a dream, with instructions to wash the robes of state in the river preparatory to her nuptials. While she and her maids were indulging in pleasant pastime, Ulysses, awakened by their voices, addressed the princess, who gave him relief and informed him how to make himself known to the king and queen of the island. Ulysses went to the capital, and being introduced to Alcinous and Arete the queen, related to them how he had left Calypso and found his way to their domains. In the seventh book of the *Odyssey* the palace and gardens of Alcinous are described:

> " The chief with wonder sees the extended streets,
> The spreading harbours and the riding fleets;
> He next their princes' lofty domes admires,
> In separate islands, crowned with rising spires:
> And deep entrenchments, and high walls of stone,
> That gird the city like a marble zone."

Pallas, who has shown him the way, now leaves him, gazing at the royal gates. The folding doors are encased in plates of gold, the pillars are of silver on a brazen base, these same precious metals being employed in the lintels and "ringlets that command the door," while

> " Two rows of stately dogs, on either hand
> In sculptured gold and labour'd silver stand.
> These Vulcan form'd with art divine, to wait
> Immortal guardians at Alcinous' gate."

Fair thrones adorned the palace, while richly-embroidered carpets, the handiwork of matrons, lay around.

After supplying us with other details relating to the palace, its staff and appointments, the poet proceeds to the description of the spacious garden, consisting of four acres of ground, fenced all round with a green enclosure and protected from storms and inclement weather. Here thriving trees told of the fertility of the soil; here fruits of many kinds were grown, vines were cultivated, and herbs arranged in order, while the whole enclosure was plentifully supplied with water from two graceful fountains. It may be of interest to enquire, a little more in detail, into the nature of the plants which this delightful legendary garden produced.

The first to be mentioned is the Apple. This word, however, has been used in so vague a manner that we have to be on our guard respecting it. The fruit in the Garden of the Hesperides was the Golden Apple—one which is common to many legends. Indeed, as Folkard has pointed out (*Plant Lore, Legends and Lyrics*, p. 223), the Apple is represented as the magical fruit *par excellence* in the popular tales of all countries. It was sacred to Venus, who, like Apollo, is often represented with the fruit in her hand. The Thebans offered Apples at the altar of Hercules. By the ancient Druids, Celts, Saxons, Greeks, Romans, Norsemen, and Germans, one and all, the Apple was held in high esteem. For its names, distribution and native haunts reference may be made to De Candolle's *Origin of Cultivated Plants*, and other similar works. It should, however, be observed that the Quince, whose antiquity in Greece is shown by Pliny, Plutarch and others, is held by some authors to be the fruit which is spoken of as an Apple. In the Gardens of Alcinous " the reddening Apple ripens into gold."

Next in order is the Fig. " Here the blue Fig with luscious juice o'erflows." Many people find this fruit unattractive, and speak of an acquired taste. To me it is one of the most delicious fruits to be found in our gardens. If not indigenous, it has been grown from time immemorial in almost every land. The Greeks, Arabs, Hebrews, Egyptians, Persians and other nations of antiquity, each had their own name for the Fig, which seems to indicate that it was always familiar to them. In Homer we read of a Fig tree which grew near Troy, and in the Hebrew Garden of Eden Adam and Eve are said to have sown Fig leaves together to make themselves aprons.

The Pomegranate is said to have glowed red in this wonderful garden, and this is a fruit which always vies with the Olive, the Fig and the Grape in ancient literature. Thus, to quote as before from Pope's translation:—

> " Here the blue Fig with luscious juice o'er flows,
> With deeper red the full Pomegranate glows;
> The branch here bends beneath the weighty Pear,
> And verdant Olives flourish round the year."

When we remember that the Pear grows wild over the whole of temperate Europe and Western Africa, particularly in Anatolia, to the south of the Caucasus and in the north of Persia, as well as, possibly in Kashmire and China, we shall not hesitate to admit its claim to a place in the palace gardens of Alcinous. But it is, quite naturally, to the vine that greatest prominence is given.

> " Here ordered vines in equal ranks appear,
> With all the united labours of the year;
> Some to unload the fertile branches run,
> Some dry the blackening clusters in the sun,
> Others to tread the liquid harvest join;
> The groaning presses foam with floods of wine.
> Here are the vines in early flower descried,
> Here Grapes discoloured on the sunny side,
> And there in autumn's richest purple dyed."

These lines, written some centuries before the dawn of the Christian era, show a full knowledge of viticulture, whatever may have been the state of knowledge in the days of Alcinous.

What the other plants were which flourished here we do not know, except that:—

> " Beds of all various herbs, for ever green,
> In beauteous order terminate the scene."

In later chapters we shall have occasion to study some of the many herbs which were cultivated in the gardens of antiquity, and we may justly assume that those which gained distinction among the most famous gardens of classical times, on account of their fragrance, medical properties and culinary attractions, were such as Alcinous would grow. We should find the Parsley and probably Portulaca, Cresses, Lettuce and Endive, perhaps the Beet and certain Crucifers, Leeks and Onions, and the fatal Poppy, to mention no others.

Very pleasing is the final touch which is given to the picture, because it not only accords with what we know of the very earliest historical gardens of Egypt, Assyria, Palestine, Greece and Rome, but reminds us how the Hebrew prophets utilised the circumstance as an illustration.

> " Two plenteous fountains the whole prospect crown'd,
> This through the gardens leads its streams around,
> Visits each plant, and waters all the ground;
> While that in pipes beneath the palace flows,
> And thence its current on the town bestows:
> To various use their various streams they bring,
> The people one, and one supplies the king."

Attention has more than once been drawn to the words of Isaiah: " Thou shalt be like a watered garden, and like a spring of water, whose waters fail not," re-echoed by Jeremiah and the Psalmist, as showing how dependent the garden was upon its streams, fountains and springs.

Let me quote at this point a characteristic sentence from Ruskin: " The whole view from Richmond Hill or Windsor Terrace, the gardens of Alcinous with their perpetual summer, or of the Hesperides (if they were flat and not close to the Atlas) golden Apples and all, I would give away in an instant for one mossy granite stone a foot broad, and two leaves of Lady Fern."

And now, in conclusion, we turn to the interpretation as given by one school of mythologists, represented by Sir George Cox. Alcinous was the King of the Phæacians, whose wonderful country is none other than Cloudland. " The Cloud-land in all its magnificence and imperial array is displayed in the great Phaiakian legend of the Odyssey. . . He who has seen in the eastern or western sky as lit up by the rising or setting sun, the cloud-capped towers and gorgeous temples catching the light on their burnished faces, can well feel whence came the surpassing and everlasting glory of the palace of the gardens of Alkinoos. . . Who does not see that in the gardens of this beautiful palace must bloom trees laden always with golden fruits, that here the soft west wind brings new blossoms before the old have ripened, that here fountains send their crystal streams to freshen the meadows which laugh beneath the radiant heaven?" *Mythology of the Asian Nations*, vol. XI., 274 *et seq.*)

Readers will perhaps differ from this learned expositor, and take their interpretation from a later school, or hold a view of their own quite independent of either. *Hilderic Friend.*

PARAFFIN AS A FUNGICIDE.

As a result of recent references in *The Gardeners' Chronicle* to the use of paraffin as a fungicide, I hope the following remarks may be of some interest to readers.

Paraffin or ordinary mineral "burning oil" has been used extensively in the past as a contact wash for controlling sucking insects, but its effectiveness as a fungicide requires further investigation. I know of no cases except those referred to above where the ingredient has been claimed to display actual fungicidal properties.

Paraffin belongs to a series of hydro-carbons known as the "aliphatic" and it is one of the lighter distillates obtained during the distillation of ordinary petroleum: it is also obtained from the distillation of shale. Paraffin

Supplement to The GARDENERS' CHRONICLE

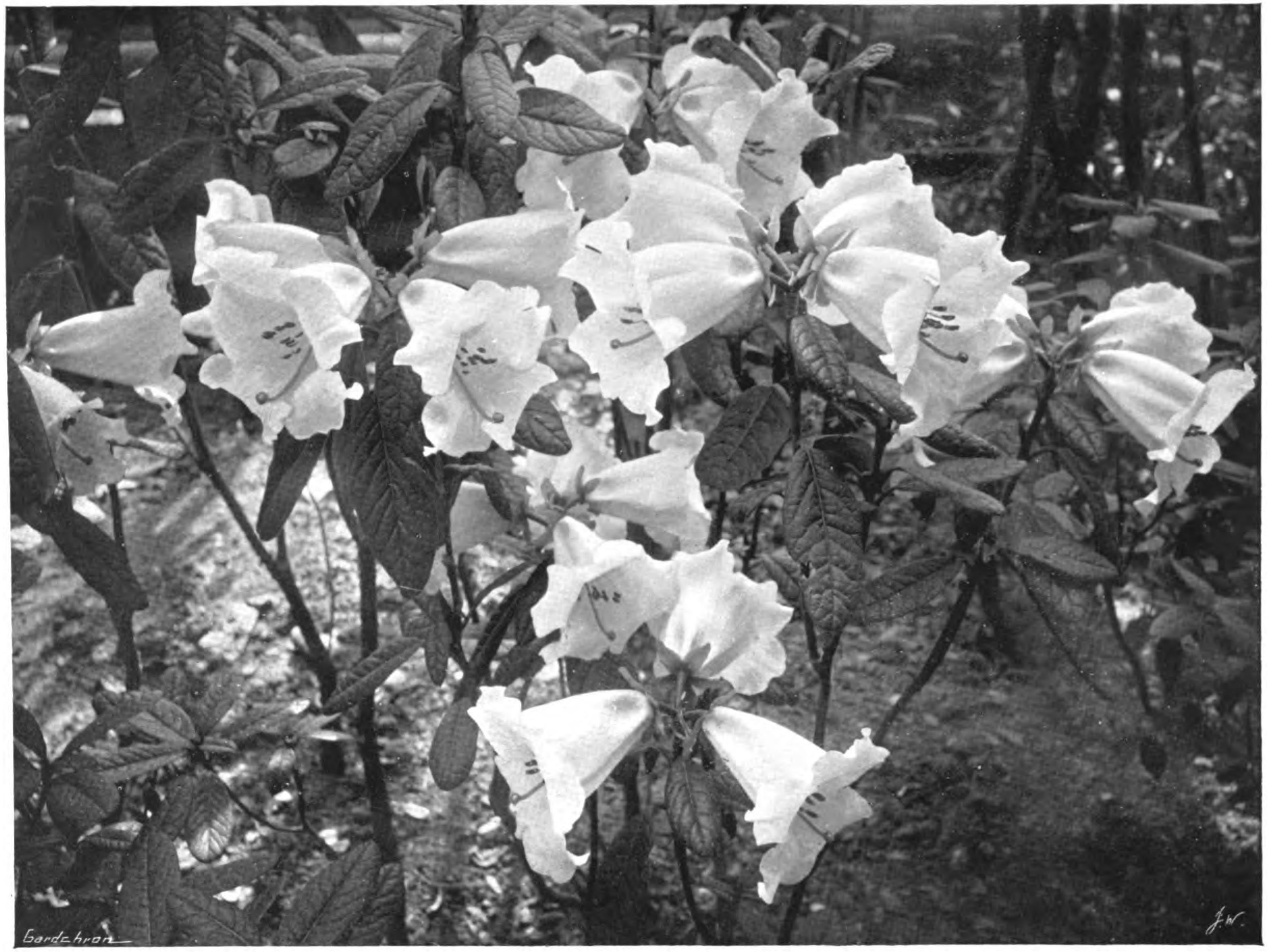

Photo C. P. Raffill

RHODODENDRON LINDLEYI.

wax, lubricating oils and mineral jelly are also members of the same series, differing principally in physical characteristics such as boiling point, specific gravity, etc., some being viscous liquids, and others actually solid.

Paraffin has been extensively used in the United States in an emulsified form, in both commercial and private horticultural practice, but in recent years it has fallen into disfavour owing to damage by scorching having followed its use. The damage has undoubtedly been due to improper emulsification in the first place, and insufficient spreading when applied as a spray, owing to what is known scientifically as a high surface tension.

The higher boiling-point section, known as lubricating oils, are now very largely used in an emulsified form during the dormant period for the destruction of certain hibernating insects and scales. It has been claimed that these oils possess definite ovidical properties in the same way as the new tar oil washes, but I am very doubtful if such is the case.

Paraffin oil, as is well-known, is insoluble in water, but it can be made miscible in water by a process of emulsification, giving a white, milky-like solution in dilution with water. This may be accomplished by a chemical or physical process. The well-known method of dissolving soap in water, adding paraffin, and then thoroughly agitating the mixture by means of a garden syringe, is an example of the latter. An emulsion prepared in this manner produces only a temporary emulsion, causing the oil to separate out on standing and to rise to the surface of the mixture. Herein lies the explanation of damage by paraffin.

The object in emulsification is to break up the oil into fine droplets or globules and to protect them with a material which will prevent them from coalescing again. This may be accomplished by boiling with soap and various other materials. An excellent method for producing such an emulsion is herewith given.

FORMULA.		WORKING FORMULA.
Paraffin oil ...	40·0%	5 galls.
Potash, fish oil, Soft Soap ...	30·0%	30 lbs.
Cresylic or Carbolic Acid ...	6·0%	½ gall.
Naphthalene	2·0%	2 lbs.
Water ...	22·0%	2½ galls.

Place the oil, cresylic acid and soap in a suitable boiling copper, heat until all the soap dissolves, add the water and finally the naphthalene and continue heating until a clear, thin, jelly-like appearance is obtained. The final product may be used at the rate of one pound to two pounds to eight gallons of water, depending on the species of plants to be sprayed, their age, delicateness and vitality. On dilution with water there should be no oily drops on the surface of the spray solution. It should be carefully noted that paraffin emulsions should not be used with water containing much lime or chalk-hardness, otherwise separation of the oil will occur.

The best results will be obtained with such a product as mentioned above by dissolving two pounds or three pounds of ordinary horticultural soft soap (free from free alkali) in eight gallons of water, and then adding the one pound to two pounds of the paraffin jelly. Such a solution will give very excellent spreading and penetration. The value of a paraffin emulsion can be still further enhanced by the addition of a quarter to a half fluid ounce of pure nicotine to every eight gallons to ten gallons of the diluted emulsion. If a supply of rain water is available it is not necessary to use the extra quantity of soap.

Delicate plants that have been treated with paraffin emulsion should be again sprayed with clear water a few hours after the application of the emulsion.

The most effective spray for rust on Chrysanthemums, in my opinion, is ammonium-copper-carbonate solution, used at the rate of one gallon to from eighty to one hundred gallons of water. *Theodore Parker.*

NOTICES OF BOOKS.

The Families of Flowering Plants.*

SOME of us "in the know" have been eagerly looking forward to the appearance of this handbook of the Dicotyledonous Families, and with the result now before us, realisation may be said to be quite up to expectation. This is no perfunctory text book written to order, but one full of originality, bearing a definite contribution to botany in the shape of a new arrangement of flowering plants (Angiosperms), based upon what the author is bold enough to call their probable phylogeny. Nearly two years ago, in an article published in *The Gardeners' Chronicle* (vol. LXXVI, pp. 8 and 14, 924) on the "Classification of Flowering Plants," reasons were given for the pressing need of a new system, and comments were made on the efforts that were being put forward in this direction by Mr. Hutchinson of Kew. These have now, as it were, crystallised, out—so far as the Dicotyledons are concerned—in this manual. A companion volume on the Monocotyledons, is promised shortly. It will be interesting to see what a fresh and unfettered mind makes of this group of plants which differs from Dicotyledons more in vegetative than in floral features.

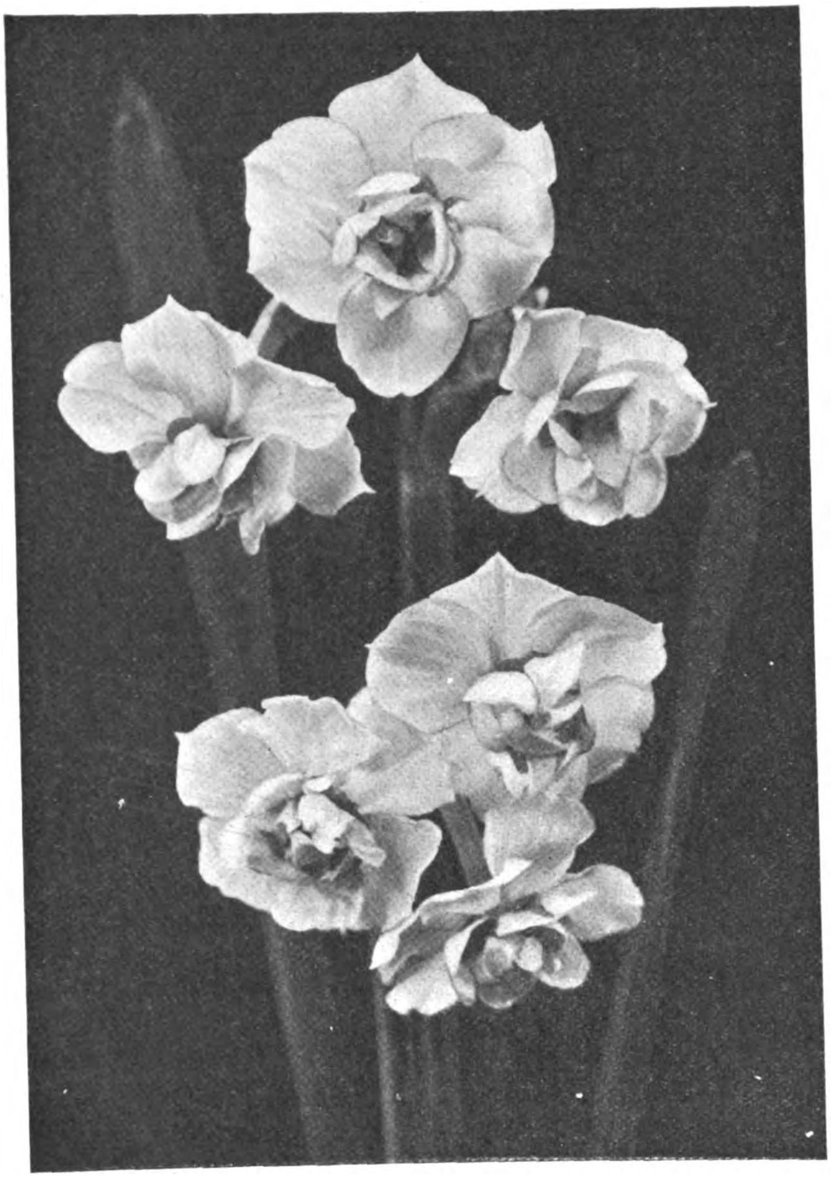

FIG. 84.—NARCISSUS CHEERFULNESS.

R.H.S. Award of Merit, February 23. Flowers cream coloured, with deep yellow, broken corona and yellow bases to the petaloid stamens.
Shown by Mr. J. W. Barr (see p. 162).

Though Mr. Hutchinson professedly aims at a phylogenetic (evolutionary) classification, it must not be assumed that he has reached finality in this matter. It is rather that he has made a beginning, building upon what many of us now think is a sound foundation, viz., that the primitive flower was hermaphrodite and complex in character, consisting of numerous free carpels, stamens and perianth members arranged spirally on an elongated axis—in fact, a flower perhaps somewhat Magnolia-like in appearance. From such a cone-like flower all other types can be derived by various degrees of modification and reduction. Such a view is wholly opposed to Engler's apparent contention that the primitive flower was unisexual, of few parts, and without a perianth. His classification, associated with the name of Prantl, is so based. It has proved unworkable as a phylogenetic system, and it may be no exaggeration to state that owing to its dominating influence the study of the flower has for a quarter of a century been largely in the doldrums. Hutchinson's new scheme, with its definite and clear ideas, should stimulate research in this department of botany. He is anxious for sympathetic criticism, for at the end of his preface he writes: "I shall welcome suggestions which will help to improve the system."

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* *The Families of Flowering Plants. I. Dicotyledons,* arranged according to a new system based on their probable phylogeny, by J. Hutchinson, F.L.S., Assistant in the Herbarium, Royal Botanic Gardens, Kew. London. Macmillan and Co., Ltd. Price 20s. net.

The book commences with a short, carefully worded "Foreword," by the Director of Kew, though here perhaps the value of the fossil evidence is overstated. Then follow the author's Preface and Introduction—clear and interesting reading. Part of the Preface (most of p. X) would seem more suitable for the introduction; a certain amount of repetition might thereby have been avoided. Emphasis is rightly laid upon a point of considerable importance in taxonomy. A clear distinction is to be drawn between a phylogenetic classification and a key. The one aims at arranging plants scientifically according to their probable evolution; while the other should endeavour to draw out the most easily applied scheme for identifying plants, regardless of artificiality. Systematists in the past, by not keeping their two ideas strictly apart, have often failed to satisfy in either direction.

The phylogenetic system or conspectus is set out in three parallel columns headed as follows:—(i) Notes on Affinity (Origin and further Development); (ii) Sequence of Orders (Cohorts), and Families. A cross line indicates the end of a group; (iii) General Characters and Tendencies of Orders. In addition, the whole system as applied to the Dicotyledons is set forth graphically in an ingenious diagram, or tree, facing page 8. We note, on page 25, one contradiction. The Rubiales are referred to as "a very natural group but *probably derived from more than one source* (reviewer's italics). This is probably a slip of the pen for "not very natural," as in the diagram the order is represented as having a mixed origin.

The artificial Key now follows. This is an effort of some magnitude, and must have cost no little expenditure of midnight oil in its elaboration. By it, with the help only of a pocket lens, it is expected that anyone with elementary botanical knowledge will be able to ascertain the family of any Dicotyledonous plant desired. Useful lists are also given of families with certain constant vegetative features, such as leaves opposite, compound or stipulate.

The main part of the book is naturally taken up with the descriptions of the families. These are given concisely with the outstanding characters in italics. The large numbers of excellent illustrations form a noteworthy and attractive feature. A representative, and often an unusual one, of every family, 264 in all, is figured. The book is thus worth having for the drawings alone. These are from the pen of Mr. Trevithick and the author. In addition, there are numbers of maps showing striking geographical distributions of families and genera. Each description concludes with a list of plants occurring in the family of service to man. Though the important genera are mentioned, a fuller conception of the size of a family would be conveyed by giving in figures the number of genera recognised, and possibly also of the species. In the case of a family consisting of a single species, *e.g.*, Eucommiaceae, this interesting fact might with advantage be definitely stated.

There is a glossary of botanical terms used in the book, as well as an index. The glossary is not quite complete. I fail to find explained such formidable terms as contortuplicate, perulate, strophiolate and syngenesious.

The work is appropriately dedicated to the memory of George Bentham and Joseph Dalton Hooker, and surrounding the inscription is a beautiful floral design (by the author), emblematic of the phylogenetic views expressed in the book. A fascinating exercise presents itself to apply names to the flowers there depicted. Would that the volume could have had a wider margin to set off to full advantage this delightful frontispiece!

The work has been cunningly planned to make as wide an appeal as possible. Besides being a text book for the teacher and student, it should be of much service to the field botanist and forester working in any land. The horticulturist who desires information respecting the affinities and the country of origin of the plants in which he is interested will find this a handy manual.

The book is well printed and the illustrations stand out sharply. In the explanations to these there are a few mistakes, *e.g.*, in Fig. 164, the male inflorescences of Casuarina are labelled female. In the descriptions, the families Frankeniaceae and Malesherbiaceae, have got out of place. These are minor blemishes in a work of so refreshing and original a character, and so obvious as not likely to be misleading. *J. Parkin.*

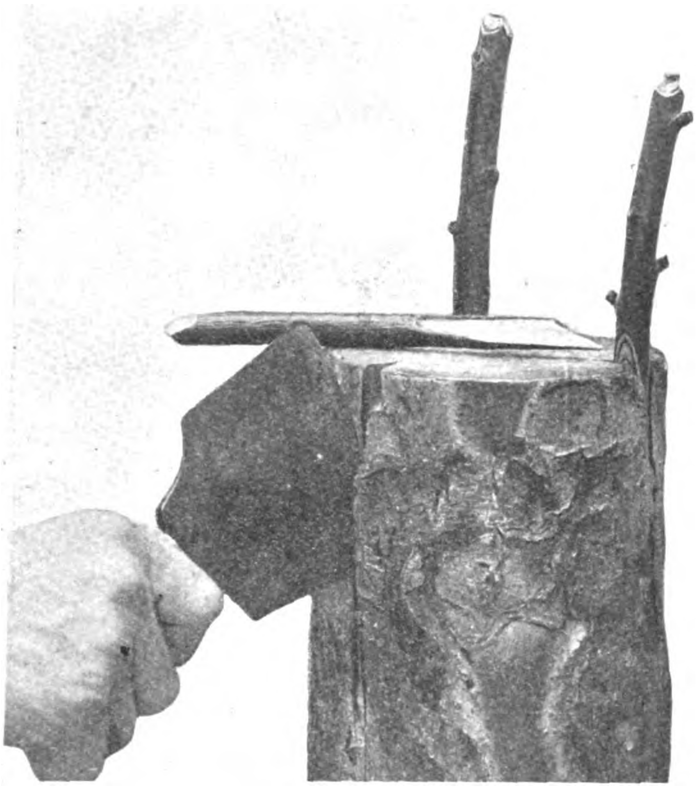

FIG. 85.—STOCK GRAFTING: SHOWING THE SAW CUT.

STOCK OR WEDGE GRAFTING.

Thanks to the kind offices of Mr. J. H. Wootton of Byford, a well-known and respected member of the fruit-growing and judging fraternity, I am able to fulfil the promise given (*Gard. Chron.*, Aug. 15, 1925, p. 134) to describe the almost lost art known variously as Stock, Wedge, Saw or Mallet grafting, when I also alluded to the presumable proficiency in this art of the men of Herefordshire some 300 years ago.

Several years since, Mr. J. Riley, of Putley, told me that he would always prefer to have wedge grafting done when regrafting old trees, but that there were few who could still do it; his predilection being founded on the impossibility of the grafts being blown out. An old grafter, now seventy-four years old, informed me recently that he had given up the method in favour of crown or rind grafting, which was so much easier to do.

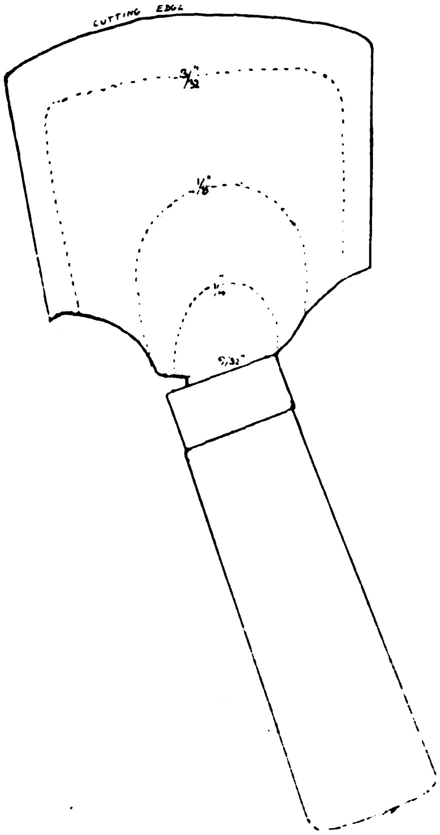

FIG. 86.—STOCK GRAFTING CHISEL.

The method is applicable to the Apple, Pear, Plum, Cherry, etc., and specimens seen of Apple and Plum showed very good unions, the change in bark character being the only indication of the grafting. The trees or stocks are headed back, and the grafts cut some while before hand, just as with any other method of grafting. Operations commence when the sap is on the move, and may be done rather earlier than other procedures, in March.

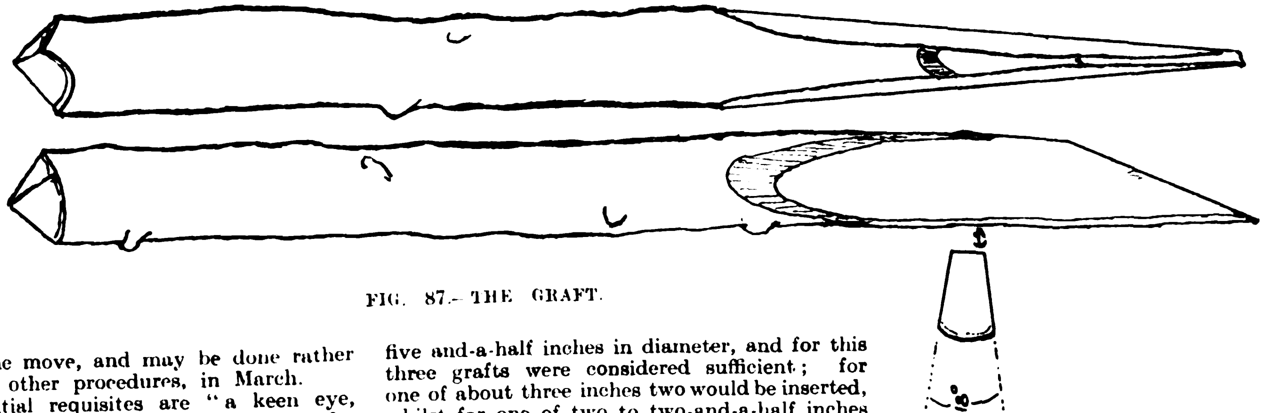

FIG. 87.–THE GRAFT.

The essential requisites are "a keen eye, a steady hand and sharp cutting tools," so far as concerns the operator. The materials, other than grafts and stocks, consist of chisel, knife, saw, and wax or clay mixture. The chisel is the only unusual tool employed (Fig. 86): it has a wide blade, thin, but perfectly rigid. From the dimensions given, any good smith can make a copy; from the figured and dotted lines on the blade the areas of thickness of the steel can be seen, and its thin, tapering blade appreciated. It will be noted that the handle is at an obliquity of 15° with the axis of the blade; the weight is eleven ounces, and that of the blade alone estimated at seven ounces. The blade should be of good steel, well tempered to take a razor-like edge. In regard to the knife, it may be pointed out that the blades of many knives are somewhat concave at the cutting edge, which tends to make a graft cut with them somewhat convex; it is important that the sides of the graft should be flat or plane, so that a straight portion of blade should be used in cutting them. The hand may be steadied against the knee whilst shaving the graft to shape; just as in some other arts the tool may be held still whilst the work is moved, so the knife may be held steady whilst the graft is drawn against it.

Any saw will serve, but inasmuch as the stock is sawn very obliquely from below, it is important that the handle should not project beyond the line of the teeth. The wax or clay, the latter so delicately named *onguent de St. Fiacre* by the French, hardly needs comment; but I think that a good pad of clay may serve to maintain a more equable temperature at the growing junction than a thin layer of wax. Perhaps the perfect seal would be secured by applying wax first and putting on a protective coat of clay afterwards; thus, should rain destroy the clay, when ill-judged in blend, the wax would keep the seal sound. I have often wrapped a few coils of paper around to afford protection against changes of temperature where only wax has been used, and in a chilly spring I have thought that some benefit arose therefrom.

Essentially, the method of stock or wedge grafting is a derivate from the cleft graft, but an improvement thereon, since the extensive damage of the splitting is avoided and the wound is limited to the place of insertion.

I have measured the demonstration grafts which were cut on two separate occasions and found them very closely in agreement. In diameter they were nine-sixteenths-of-an-inch; in length, seven inches; pieces of three-eighths-of-an-inch diameter were judged to be too thin and those of five-eighths rather too thick. For a length of about three inches, flats are cut on either side, tapering from side to side and front to back, that is wedge-shaped, both longways and crossways, in fact, like those cut for cleft grafting. Measurements of specimens showed that the two sides were inclined at an angle of eighteen degrees, *i.e.*, the angle familiar in a razor from edge to back. The inner heel of the graft is further sliced off obliquely to allow clearance from the end of the oblique saw cut. The top end of the graft is trimmed to a pyramid with three cuts, the projecting wood receives the blows when tapping into place. Fig. 87 shows side and back views of the graft cuts.

The stump used for demonstration was five and-a-half inches in diameter, and for this three grafts were considered sufficient; for one of about three inches two would be inserted, whilst for one of two to two-and-a-half inches one only would suffice. In the ordinary course of events, the stump would have been shortened some time before the actual grafting, when it is again sawn off to the desired place: this having been done, the saw is applied at one point and a cut made obliquely upwards and inwards, so that the finished cut extends about three-and-a-half inches down the stem and about one inch towards the centre. The lower corner of the chisel is now placed in the lower part of the saw cut and the blade is swung upwards and inwards so as to remove a thin slice from one side of the cut (Fig. 85). The process is continued, shaving *thin* slices from either side, each chip being removed before the next is cut, until a recess tapering inwards and downwards is made to suit the tapering cut of the graft. Care is taken only to remove a very thin shaving at a time, as well as to clear the view by removing each shaving before proceeding to the next.

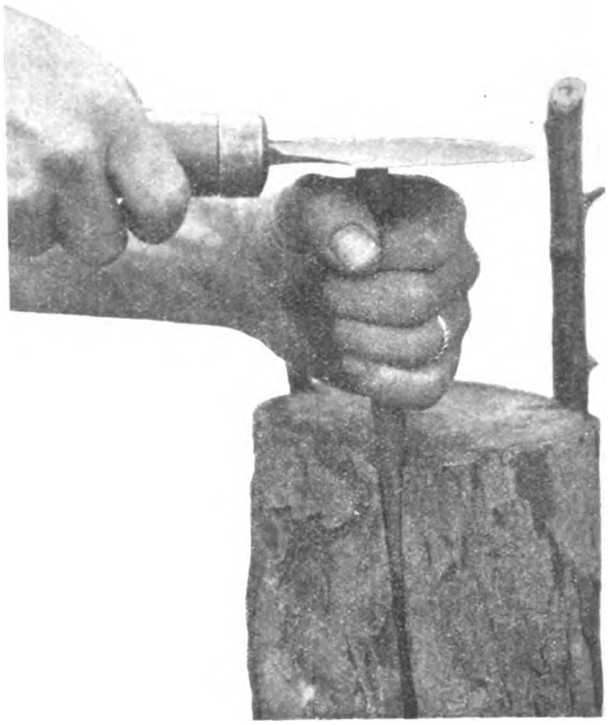

FIG. 88.–STOCK GRAFTING: DRIVING HOME THE GRAFT.

When seemingly nearly correct, the graft is gently tried in the slot; it may then be a question of judgment whether it would be better to slice a trifle off the graft or off the slot; before doing which however, a slight bevel is sliced off on either side of the top of the slot, as shown in the photographs, partly to ease the insertion but chiefly to give a better view when driving in the graft. Driving the graft (Fig. 88) is done by holding it very firmly with the left hand, with careful adjustment so that cambium is opposite cambium. The hand must be ready all the time to counteract a slight outward drift as the top of the graft is tapped home with the flat of the blade of the chisel. As seen in the photographs the summits of the grafts become somewhat burred by the hitting. When inserted the graft should be quite firmly gripped and its cambium in contact with that of the stock. All that now remains to be done is to apply wax or clay. It will be noted that the whole of the cut surface of the graft is not buried in the stock; no doubt the amount left out should not be unduly great.

It will, I think, be clear that a little practice on dummy pieces would be advisable before essaying with the "real things," though this can hardly be done profitably upon dry logs, since the conditions of elasticity etc., have been lost in drying. It would be interesting to see how some subjects (*e.g.*, Walnut) which are rather rebellious to grafting would behave themselves under this method. *H. E. Durham.*

ORIGIN, EARLY HISTORY AND DEVELOPMENT OF THE POTATO.

(*Concluded from page* 159.)

More definite records exist concerning Scotland. In his *Agricultural State of Scotland* (1814), Sir J. Sinclair states that Potatos were first brought from Ireland to the County of Lanark towards the end of the seventeenth century by Major Hamilton of Raplock, but they were very sparingly cultivated for more than sixty years. Sir John goes on: "It is asserted in the statistical account of Scotland, vol. XVIII, p. 282, that Mr. Robert Graham of Tamrawer, in the parish of Kilsyth, and County of Stirling, was the first person in Scotland who cultivated Potatos in the open field, by dibbling and hand hoeing. His first essay, in this husbandry, was in the year 1739, when he planted Potatos by means of the dibble, on about half-an-acre of croft, or old infield land, at Neilston in that parish." In a letter by the Hon. Baron Hepburn, dated 20th March, 1808, addressed to Sir J. Sinclair, and appearing in the *Communications to the Board of Agriculture*, it is stated that Potatos were first imported into Leith in the year 1740, and after that they were for some time grown in gardens only, the first field culture being carried out by a farmer, named Hay, at Aberlady, about 1753 or 1754. The last-mentioned date corresponds approximately with that given by Loudon* for field culture in Scotland. It is to be presumed that both statements are records of fact and that Baron Hepburn was unaware of the earlier introduction. Loudon further adds that a few Potato plants existed about Edinburgh in the year 1725-6, and these were left in the ground from year to year, as recommended by Evelyn, a few tubers being removed for use in autumn, and the parent plants being well-covered with litter to save them from the frost in winter. Loudon remarks that in the year 1796, in the County of Essex alone, 1,700 acres of Potatos were planted for the London market, A study of the Potato in *Rees' Cyclopaedia* 1819, reveals some interesting facts; varietal yield trials had been conducted before the date of publication and experiments with different sizes of seed were made in 1790. It would appear also that manuring experiments on Potatos began so early as 1771.

With regard to the cultivation of the crop, the following extracts will serve the useful purpose of showing progressive early development :—

(A).—*Planters', Florists' and Gardeners' Pocket Dictionary*, by James Gordon, 1774.

"The first thing to be observed in the culture of them is to plow or dig the ground well before winter. If ley-ground is plowed up, it will require two or three plowings before planting, and all roots of perennial weeds gathered out as clean as possible, and cross plowed and harrowed well. If the ground is stiff, it should be laid up in ridges all winter.

"Before the last plowing or digging it should be dunged with half-rotten dung. Some people, where dung is not plenty, lay it in the furrow or trench above or below the Potatos, but it is a bad practice to lay it above. . . . . . Many plant them after the plow, every other furrow, and others miss two furrows according to the goodness of the ground. . . . . . If the ground is digged and the plantation not large, it will be better to plant them with a garden line and dibble, eighteen inches or two feet between the rows, and from a foot or eighteen inches in the rows. The quickest method for planting them is to have a foot-dibble shod with iron pretty thick to go but about five or six inches into the ground. If the line is stretched, one runs along the line with the dibble and another follows and drops the seed into the holes, drawing in the earth with his foot as he goes along"

(B).—*Chambers' Cyclopaedia* (1781).

"The most advantageous way of propagating Potatos is the planting them at large distance, and digging and horse-hoeing the ground several times between them. . . . . .

"In the spring, just before the last ploughing, a good quantity of rotten dung should be spread on the ground, which should be ploughed in the beginning of March, if the season be mild or towards the latter end of the month if there be a probability of frost. In the last ploughing the ground should be laid even, and then the furrows should be drawn at three feet distance from each other, and about seven or eight inches deep. In the bottom of this furrow the roots should be laid at about a foot-and-a-half asunder; then the furrow should be covered in with the earth. About the time when the shoots are expected to appear above the ground, it should be well harrowed over both ways, in order to break the clods, render the surface smooth and destroy the young weeds. The hoe-plough may likewise be introduced between the rows; and this operation should be repeated twice early in the season before the stems of the plants begin to trail upon the ground, and a hoe may be made use of to stir the ground and destroy the weeds between the plants in the rows."

(C).—*Agricultural State of Scotland*, 1814. By Sir John Sinclair.

"1. The universal mode of growing Potatos in the best managed districts is in drills, as described below.

"2. The land gets one ploughing after harvest, with a view of making it mellow, by the influence of the atmosphere during winter. It is cross-ploughed in spring, and gets, or ought to get, as many ploughings and harrowings as are necessary to reduce it into fine tilth, and to remove couch and other vivacious roots."

"3. After the land has been effectually cleaned and reduced, it is formed into hollow drills and ridgelets, and the dung is laid on and spread, in the same manner as already described for Turnips. The sets are laid, by hand, upon the dung, in the bottom of the hollow drills, at various intervals, from four to eight inches; the ridgelets are then split open by the plough, to cover in the seed."

"4. The sets are commonly cut, seldom whole; though some prefer the latter."

"5. Some time after setting, and before the plants begin to push up, the land is harrowed down flat. After the plants are fully up in the rows or drills, the intervals are horse-hoed, and the rows hoed by hand. These operations are repeated at intervals, and, when the plants have acquired some strength, the intervals are split open by the double-mould-board plough earthing up the plants. The cleaning process, however, ought not to continue long, else the crop will be injured by disturbing the radicles when in search of food. And if the soil be kept *too loose* the whole summer, the plants will not bulb well."

"6. They are taken up after harvest in October or November usually by the plough, laying open the drills, when they are gathered, or they are carefully dug up, root by root, with flat-grained three-pronged forks, each digger having one or two children to gather them."

"7. Potatos are stored up for winter in dry, cool out-houses or cellars, covered up with straw, and secured from all access of frost, or in what are called pits, pies or camps."

The Potato is a plant of such economic importance that its history has alway been a subject of great interest; its introduction to this country remains a matter for speculation.

The further history of the Potato is concerned mainly with the development of new varieties; with the struggle against diseases, particularly late blight (Phytophthora infestans); with the improved methods of culture; and with the gradual distribution of the plant throughout the world, due to a universal recognition of its value as a source of food for the human race. *T. P. McIntosh.*

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* *Encyclopaedia of Gardening*, 1824.

POTATO PURITY TRIALS IN SCOTLAND.

These summaries show the acreages of Potato crops of the Immune and Non-Immune varieties, respectively, inspected for purity in Scotland during 1925.

IMMUNE VARIETIES.

Name of Variety.	Percentage of Purity.			Totals.
	99·5% and above	Below 99·5% to 97%	Below 97%	
Kerr's Pink ...	9,189¾	1,444¼	484¼	11,118¼
Great Scot ...	3,820¾	939¾	596½	5,357
Golden Wonder	2,590	176¾	131¼	2,898
Majestic	1,880½	391¾	261¾	2,534
Ally	529½	74	25¾	629¼
Tinwald Perfection	442	47½	42½	532
Rhoderick Dhu...	390½	35¼	39	464¾
King George ...	250	24¾	41½	316¼
Crusader	218¾	4¾	13¾	236¼
Arran Comrade...	151¼	24¾	14¾	190¾
Abundance ...	76¼	31½	48¼	156
Immune Ashleaf	124½	7	4	135½
Arran Victory ...	110¾	—	1¾	112½
Witchhill	67¾	18	2¾	88½
Dargill Early ...	66¾	11½	4¾	83
Others	346¾	80½	25½	452¾
Totals ...	20,255¼	3,310¾	1,738	25,304¼

NON-IMMUNE VARIETIES.

Name of Variety.	Percentage of Purity.			Totals.
	99·5% and above	Below 99·5% to 97%.	Below 97%	
King Edward ...	7,131¾	1,995¼	882½	10,009½
Arran Chief ...	2,155½	974¾	1373½	4,503¾
Epicure	987¾	759	553¼	2,300
British Queen ...	1,009	350½	182	1,541½
Sharpe's Express	956¾	391½	192¼	1,540½
Eclipse	960¾	272	161¾	1,395½
Field Marshal ...	923¼	132¾	14½	1,070½
Duke of York ...	453¼	84	97½	634¾
Up-to-Date ...	386¾	48¾	44¾	462¼
May Queen ...	130	12¾	28¼	171
Ninetyfold ...	78½	22¼	3	103¾
Others	161½	110¼	63¾	335½
Totals ...	15,315¾	5,153¼	3598¾	24,067¾

FRUIT REGISTER

APPLE GRAVENSTEIN.

Although not so widely grown as it deserves to be, the variety Gravenstein is worthy of a place in every collection in private establishments.

It is of continental origin and was probably introduced into this country about the middle of the eighteenth century. Unfortunately, this Apple is inclined to be a rather shy cropper. It makes a good standard, and it is in this form that it is most likely to succeed, as I think it resents hard pruning.

Bearing large, pale pink flowers, it is one of the most beautiful of Apple trees when in bloom. The fruit is in season during October and November, and is classified as being both dessert and culinary, but, personally, I think it is far too good to be used for the latter purpose.

The fruit is of medium to large size, irregular in outline; the eye is closed and set in a rather deep basin; the stalk is very short and set in a deep cavity. It is a variety of attractive appearance, the pale yellow ground colour being prettily striped with crimson. The flesh is crisp and juicy and possesses a very refreshing and distinct flavour. *J. Wilson, Wisley.*

TWO RELIABLE APPLES.

For a number of years, I have been greatly impressed by the freedom of cropping and excellent quality of Golden Noble and Galloway Pippin Apples.

Golden Noble is a culinary variety, in season from October to December, but when thoroughly ripe, it is not to be despised as a dessert fruit.

This Apple is of large size and has an even, golden colour ; it has a very white flesh and cooks well. The tree succeeds in the bush or pyramidal form. Brought to notice about 1820, the origin of this fine old variety is uncertain.

Galloway Pippin is a variety of medium to large size, with skin of an even greenish-yellow colour, sometimes with a few minute greyish or brown spots. The flesh is white and of good flavour.

The tree is a prolific bearer, makes clean, healthy growth, and succeeds either as a bush or pyramid. The fruits are in season from November to December.

In the worst of seasons these two varieties rarely fail to carry crops of good, clean fruit. *Ralph E. Arnold.*

VEGETABLE GARDEN.

BROCCOLI.

The hardiness of many green vegetables has been sorely tested this winter. I have no means of knowing how other growers have fared, but I have lost a much larger percentage of plants than for many years past. Brussels Sprouts, Purple-Sprouting Broccoli, the old Cottagers' Kale, and Hardy Green Colewort have suffered the least. All Broccoli, with one exception, Late Queen, have been injured more or less severely ; not a single plant of Late Queen has suffered. Some growers rely on a few good kinds and make successional sowings. I have always found safety in numbers, and select varieties that naturally succeed each other, although sown and planted out at the same time.

I make two sowings of Broccoli, the first about the middle of March and the second about the middle of April, according to the variety. June is the month in which most plantations of Broccoli are made, when the ground can be cleared, yet it is frequently July before the work can be done. My plants were set out at the end of June and early in July, two feet six inches apart, some on ground which had been cleared of early Potatos, and others on ground which was cleared of a three-year-old bed of Strawberries. I always select the poorest and firmest soil for this most important crop with most satisfactory results, as rich soil produces tall plants with soft stems, and leaves which suffer wholesale in a severe winter. The mild, wet autumn of 1925 has no doubt had a great deal to do with the present mortality. Last summer twelve varieties were planted, and those on the Potato ground heeled over before frost occurred in order to check growth and harden the plants. The stems were well covered with soil and made firm, although I did not consider my plants tall or gross in any respect. "Heeling" is largely practised in the north, but many growers in the south consider this operation unnecessary. I did not, however, follow up this precaution with some form of protection, by Bracken or other rough material, as is often done. There is little difference in the losses of these Broccoli and those planted on the Strawberry ground without any other attention.

The value of heeling over Broccoli is overestimated by growers, for not only is much labour wasted, the size of the heads are considerably diminished thereby. I am more firmly convinced in my opinion every year that this protection is unnecessary. The plants in fields are generally dwarf and hardy, but only last week I noticed more vacancies than usual in fields several acres in extent. The past winter has not been one of the severest, but quite severe enough to injure the Broccoli crops on heavy, wet ground. Varieties grown are Superb Early White, Veitch's Self-Protecting, Snow's Winter White, Backhouse's Winter White, Knight's Protecting, Leamington, Perfection, Satisfaction, Late White, Methven's June, Model and Late Queen, the last standing out alone on our cold soil as the hardiest in this selection. Model, Methven's June, Knight's Protecting, Backhouse's Winter White and Leamington are the hardiest of the other varieties. *F. Jordan.*

HOME CORRESPONDENCE.

Does Frost Kill Insects?—All my observation goes to confirm Mr. Nicholson's opinion that a hard winter is favourable to insect life (page 122). It need not, I think, be hard enough to "decimate" the birds, as he suggests ; all that is needful for the protection of subterranean larvae, such as leather grubs, wireworms, etc., and the pupae of these and other species under ground, is that the frost should be hard enough to prevent the use of plough or spade. Now that the ploughs have got to work again, it is pretty to watch the seagulls crowding close at the heels of the ploughman in search of tit-bits whereof there is no scarcity in the freshly-turned furrows. The most rigorous winter in my experience was that of 1894-5, when severe frost endured from early in January until the middle of March. I have it noted that in the succeeding summer insect life, both aquatic and terrestrial, was unusually abundant. *Herbert Maxwell, Monrieth.*

Rabbits and Heaths.—In reply to *T. C.'s* enquiry on page 125, I know, to my cost, that rabbits eat newly-planted Heaths greedily. If, however, the plants are protected with wire-netting until they have become well-established and begun to spread, they may hold their own just as the common Ling and Bell Heather grow freely where rabbits abound, though some of the plants may be nibbled pretty closely. Much depends upon what other supply of food the rabbits can turn to. *Herbert Maxwell, Monreith.*

——It may help *T. C.* (p. 125) to know that on the commons around here rabbits are very plentiful, burrowing freely amongst the Heather, but they do not appear to feed on it. Rabbits often get into our garden and have attacked Broom, Gorse, Veronica, rock plants, Cedar, Holly, fruit trees, Crocus, etc., but have not touched any of the varieties of Erica growing near-by. Were rabbits severely limited for food no doubt they would attack Ericas, but while they can find plants of a more succulent nature, I do not think they would feed on the wiry stems of Heaths. *R. Gardner, Cobham.*

Gardening—an Old Profession.—There appears to be a deliberate attempt on the part of a few new owners of estates to belittle the honourable profession of gardening. Years ago a gardener was nothing but a domestic servant, true, of an "upper" kind, but with the great advance of knowledge in horticultural matters the type has changed, and gardening is on the up-grade still. As proof of this, I have received numerous requests from gentlemen to take and train their sons in gardening, and if further proof be needed it is surely to be found in the Wisley Gardens of the Royal Horticultural Society, where a considerable number of students are in training. Obviously the parents of such students are not having their lads trained in order that they may earn thirty shillings a week as gardeners! The parent of to-day is not inclined to pay a premium for the training of his son unless there are good prospects. I am sure there is a future, and a brilliant one, for those who are genuinely keen, able and original. All this goes to prove that notwithstanding the fact that many large estates are being broken up, there is always a demand for the right man. But it has taken many years to arrive at the present status of our profession, and my experience has been that gardens and estates are crowded with labourers. I cannot tell how many estates I know where I have personally investigated the facts and found a really experienced head gardener saddled with a staff of incompetents who have been there for years and cannot easily be got rid of. There are other places where no one will suit either the gentleman or the lady, who believe their knowledge is so great that there is really no need for an experienced gardener. There are people who are always changing their staff, will not pay a fair wage, and persistently treat gardeners as domestics. Against all this gardeners must wage war unceasingly. Every gardener should stand for his profession, first obtaining all the horticultural knowledge he can, keep abrest of the times, and so help to make gardening a progressive and enduring profession. *Bruce D. Hewitt.*

Iris unguicularis.—Although strictly true, it seems hardly fair to Iris unguicularis to state that the flowers are "too tender for packing for travelling," as mentioned in Mr. Harrison's note in your issue of February 20. The opened flower is no doubt too tender to travel by post ; but, if the buds are picked when the petals are still unrolled, they are extremely easy to pack, travel excellently, and open in a few hours after being put into water. The reference to the note in *The Gardeners' Pocket Diary*, published by the R.H.S., recommending that the leaves of this Iris should be cut back to half their length in May or early June, might also have gone a little further. Where this Iris is planted in ordinary garden soil the cutting back of the leaves has an extraordinary effect on the production of flowers, because, I take it, the summer sun can shine on the soil about the roots of the plant and give them a good baking. But where I. unguicularis is planted under a wall facing south and the soil is of the very poorest (as it should be) the growth of the leaves is not nearly so strong, and the necessity for cutting them back is not so obvious. Mr. Dykes, however, used always to recommend that the leaves should be cut back, if for no other reason than that it was much easier to get rid of the snails in the autumn ; these pests infest the plants and are a great nuisance, and unless cleared away will eat every bud as it comes up. Powdered alum, scattered among and around the plants, prevents a lot of damage by these pests, and does not injure the plants in any way. It may be well to add that in picking the buds care should be taken not to cut them too low down, especially in the case of those which flower early in the season, because dormant buds which will flower later may easily be damaged. *Charles T. Musgrave, Hascombe Place, Godalming.*

Early History of the Potato.—In addition to the interesting facts mentioned by Mr. McIntosh on p. 159, the following may be recorded In the old *M.S.S.* at Belvoir Castle it is recorded that King James I paid a visit to Belvoir on August 7, 1612, with the Prince of Wales, and had six whole meals there, and that twenty Potato roots were purchased for that event. Unfortunately, the price is not stated, although most of the other expenditure is given with great care. The company on that occasion appears to have been very numerous, as fifteen oxen, steers and heifers were purchased ; fifteen muttons, 116 lambs, etc., etc. The item of Potatos appears under the heading "Expenses of spice at the King's being there." Cowcumbers, two barrells ; Samphor (Samphire), two barrells ; Hartechoakes, six dozen ; Quinces, one barr cont. 104 ; Oringes, 200 ; Ryse, £20, are also mentioned ; and among presents, "Pears, two baskets, from Mr. Markham of Sydebrooke (Sedgebrooke) ; Rewardes, six shillings," presumably to the messengers, which must have been on a very liberal scale, as wages were very low in those days. At a previous visit of the King in 1603, I find "Paied to Sampson Scoffyeld, of Wollisthorpe, for fourteen days to set up tentes and lattinge downe agayne and makinge tente pynes againste the Kynge's com'ynge to Belvoyre at 4d. the day, 3s. 6d. ; and to John Warner, for fyve days carringe breade to the Castell, 12d." *W. H. Divers, V.M.H.*

Lobelia cardinalis.—A correspondent (p. 96) states that a slightly-heated pit is needed for the protection of Lobelia cardinalis in northern gardens. In my opinion, the plant needs a season of rest. One specimen still in the open here is quite unharmed after experiencing 25° of frost. Those stored in frames are protected only from wet, which is far more detrimental to their welfare than frost. *Charles Hodgson, Acton Place Gardens, Sudbury.*

Onions.—I was greatly interested in Mr. Gregor Roy's criticism (p. 86) of Mr. Copley's method of growing Onions. I have seen excellent results from Mr. Roy's method of culture, but I prefer sowing Onions thinly in boxes, and when large enough to handle prick the seedlings off into boxes (not pots) using a compost consisting of one part loam, half-part leaf-mould, silver sand and a little wood-ash. Gradually harden the seedlings and plant them out about mid-April, nine inches apart in the rows which should be one foot asunder. The ground should be trenched deeply and dressed with farmyard manure, adding a good dressing of wood-ash and soot a few days previous to planting. As regards feeding, I think Mr. Copley has greatly overdone it by advising as a first dressing, one ounce per bulb of superphosphate 30 per cent; a quarter-ounce is plenty, gradually increasing to half-ounce per bulb, later giving a dressing of nitrate of soda to stimulate leaf development. Keeping the bed well supplied with water in dry periods during the growing season, giving an occasional dusting of soot during showery weather, and using the hoe on every possible occasion are other details of importance. *W. Thomas, Day House Gardens, Shrewsbury.*

I am sorry that an error crept into my manuscript. The sentence Mr. Thomas refers to should read as follows :—" During the first fortnight, the formation of roots is encouraged by four applications of superphosphate (30 per cent.) at the rate of half-an-ounce per plant " *Geo. H. Copley.*

Tetrachlorethane as a Glasshouse Fumigant.—I am sure that many readers of *The Gardeners' Chronicle* will be grateful to Mr. G. Fox Wilson for his illuminating and helpful note (page 138) on this subject. He has covered the ground so thoroughly that little remains to add. I should be interested to know if the fumes of tetrachlorethane are likely to be more toxic if the house is dried off prior to fumigation. It occurs to me that the fumes would not be impeded in their action so much as would be the case if the plants were covered or partly covered by a film of water. Will Mr. Wilson inform me if the species of white fly which attack Gorse is the same as the one that occurs on greenhouse plants. There are certain areas in the county of Glamorgan, near the sea, where numerous colonies of white flies are found on Gorse every year. I have no work of reference which indicates a species peculiar to the Gorse, and examination reveals no specific difference. If it is definitely known that this plant is concerned with the spread of white fly it might be possible to induce landowners to burn the Gorse and thus help to rid our gardens of a terrible pest. *Geo. H. Copley, N.D.H.*

GARDENS AT OLYMPIA.

As is usual at the Ideal Home Exhibition, a large annexe at Olympia is again devoted to gardens, and the present display is one of the best of the series.

The most attractive and pleasing garden is the one arranged with great skill by Messrs. James Carter & Co. The general scheme is a low hill-side with a winding stream in the valley-foreground, into which water descends from three waterfalls and pools. Rocks, suitably planted, are used with artistic restraint on either side of the moving water, which gives life to the whole picture. Pines and other Conifers serve as background and flanking groups, adding dignity to the design. Several varieties of Daffodils, with a few flowering Cherries, Dielytra spectabilis and Azaleas are grouped effectively in the foreground in a natural and uncrowded manner, while on the upward slopes Erica carnea is massed around a rocky outcrop on the one side and Primulas fill a little plateau below the rocks on the other side. A few choice Conifers add grace and colour on the higher parts of this charming garden picture.

The circular Italian garden, arranged by Messrs. Luff and Sons, is finely planned, and the pergola-like entrances to the central pool and fountain are admirably constructed and beautiful in themselves. Between these entrances forced flowering shrubs in great variety and beauty are planted in wide borders, which are equally attractive on both sides. Hyacinths are associated with the shrubs and used with great freedom, indeed, in our opinion, the fine design is somewhat spoiled by an excess of good things. A pleasing rock-garden is also provided by the same firm.

Mr. G. Whitelegg has ingeniously contrived to combine two distinct gardens in his allotted space, each a complement to the other, and so arranged that the colouring of the Azaleas, Wistarias and Lilies in the shrub garden is not seen from the admirable rock garden. A winding path leads from one garden to the other, and in so doing passes over high ground that effectively but very naturally divides the two. The Mollis Azaleas and standard Wistarias are very fine in the shrub garden, while Saxifraga Irvingii, S. Faldonside and a colony of Primula denticulata alba arrest attention in the rock garden.

Messrs. J. Cheal and Sons have on view a delightful garden house suitable for a fairly large estate, and they have also a formal Yew-hedged garden with central pool and paved walks, with beds of Hyacinths set in the green turf. Outside the hedge are borders of choice shrubs wherein Rhododendrons, Ericas, Laburnums, Viburnum Carlesii and Pernettyas are planted effectively.

Messrs. L. R. Russell have a design for planting the whole width of a villa garden, at the end farthest from the house. A rustic, Clematis-clad arbour, with low steps leading thereto, is the central feature; on either side of this early-flowering trees and shrubs are planted, these including the fragrant Viburnum Carlesii, Rhododendron praecox, Lilacs, Magnolias, and other subjects, some in standard form and others as bushes. Acacias and tall Cordylines behind the arbour are effective, but not in keeping with the general design. Near-by, Messrs. Allwood Bros. have a formal garden with beds of Carnations; large lead urns at the entrances are also filled with Carnations. The whole effect is quiet and pleasing.

Messrs. R. Wallace and Co. present a combined rock, water and shrub garden, with a rustic summer house that seems rather too large for the area planted. A dove-cot is another feature. One of the most pleasing items of this garden is in the outer corner, where Snowdrops, Crocuses and Primroses are grouped naturally below thinly-planted trees. Messrs. Reamsbottom show what may be done with Anemones, and their formal garden planted solely with these beautiful spring flowers may suggest similar plantings where Anemones are firm favourites.

Capt. Crewdson Day has a formal garden with paved paths and central pool of water and four beds of blue Hyacinths. His rock garden did not attract us greatly, and we did not admire the use of close turf, cut in squares and set diagonally around the rocks. Mr. Reginald Winder has a pleasingly designed Rose and Carnation garden with a surrounding hedge of Lonicera nitida—showing the value of this shrub for a low, stiff hedge—and rambling Roses on chains and pillars; sunshine is needed to give effect to this garden.

A very quiet and restful garden arranged by the Orpington Nurseries makes a strong appeal to many visitors, and is a striking contrast to some of the more gorgeous displays. Rock and water, green turf and Heaths, Saxifrages and Primulas are all pleasingly associated, and a stroke of genius is the little group of Birches with simple Primroses and Snowdrops covering the ground beneath. Other gardens of interest are Mr. Pinney's Violet garden, in which Primula Jewel assists its fragrant sisters; the rock and shrub garden arranged by the Central Garden Supplies, Ltd., and the same firm's rockery bank, which suggests a method whereby owners of small gardens may grow a fairly large collection of alpines in a small space; and lastly, the Dutch Tea Garden, wherein Messrs. J. Carter and Co. have planted Hyacinths and Daffodils as a foreground to the scenic painting which represents a bulb farm in Holland, with its accompaniment of windmill, canal, distant village and the familiar long, stretches of Hyacinth beds.

SOCIETIES.

LINNEAN.

At a meeting of the Linnean Society on February 18, Mr. J. Ramsbottom, Botanical Secretary, displayed a number of air photographs which showed " fairy rings " on the downs around Salisbury. The photographs were loaned by Mr. O. G. S. Crawford, Archaeology Officer to the Ordnance Survey, well-known for his investigations on the avenue of Stonehenge and on Celtic fields. The dark rings in pastures are of very frequent occurrence and are usually realised to be associated with fungi. The name " fairy-ring " suggests another association which Conan Doyle has somewhat ingenuously supported by saying that although the rings cannot have been formed by the dancing of fairies they would offer a very charming course for a circular ring-a-ring dance. There is much folk-lore connected with fairy-rings. In some countries it is lucky to step into a ring; in others, luck favours those who keep out. The dew on the grass of some or other part of the ring is beneficial to a maiden's complexion—or to her love affair.

Coloured slides of rings of Tricholoma gambosum were shown and diagrams explaining the mode of their production. In former times, thunder, lightning, moles, haystacks, and so on, have been regarded as the causal agents, but the lecturer did not support these hypotheses. The rings are formed by the growth of the fungus mycelium or " spawn." A spore, on germinating, gives rise to a mycelium which, if there are no obstacles, spreads equally in all directions. These fungal filaments as they spread consume a portion of the organic material of the soil; the carbohydrates are used up or reduced, and part of the protein is converted into ammonia; and eventually nitrates. These nitrates are available as plant food for the higher plants and stimulation of growth results. In this way is formed the outer ring of stimulated growth so common in rings on pastures. The manuring of the soil with the consequent increase in growth results in greater demands upon moisture. But the increase of growth of the mycelium, probably owing to filling the air spaces, makes the soil impervious to rain water, and causes a physiological drought. The result is that the grasses and the flowering plants die and leave a bare zone which is attributed to dancing fairy feet, or in German tradition to the scorching caused by a fiery dragon lying down to rest after his nocturnal wanderings. The compacted mycelium dies after a few years and leaves the soil still more enriched and no longer impervious to moisture. Grasses and flowering plants invade the area and show stimulated growth. This three-zoned ring—an outer and inner stimulated zone with a middle bare zone—is the most frequent type. The theory of ring formation is that of Shantz and Piemeisel: the hypothesis of parasitism to account for the bare patch is discounted by the fact of regular growth. A matter of interest with the downland rings is their rate of growth, because it may be used in estimating certain changes in vegetation. The rate of growth apparently depends upon the species forming the ring and upon weather and soil conditions. Measurements are remarkably few and discordant. Shantz and Piemeisel found that in Colorado the mycelium of Psalliota tabularis and Calvatia cyathiformis grew on an average about 12 cm. annually, and estimated the age of rings at 250 and 400 years respectively: fragmentary rings, if arising from a single ring, would be 600 years old. The largest complete ring in the photographs was 350 feet in diameter, and assuming the rate of growth to be 12 cm. annually, would be more than 400 years old.

The paper was followed by one of more academic interest. Prof. F. O. Bower outlined a scheme of phyletic grouping of Ferns. This was illustrated by lantern slides which enabled the audience to visualise the evidence. The criteria of comparison were detailed, leading to a précis embodying the most archaic characters. This " archetype " is substantially similar to the Psilophytales of the Devonian. It is probable that in the course of descent a gradual transition took place from the Eusporangiate to the Leptosporangiate state. In the phylogenetic tree, as constructed, Ferns with distal or marginal sori are placed on the left, while on the other side are those in which the sori are superficial, a state that is regarded as a secondary result of a widened leaf surface; the marginal is probably the primitive position. This grouping results in the separation of the Dicksoniaceae and the Cyatheaceae.

An interesting sequence is shown in the middle line of the scheme, Osmundaceae—Plagiogyria—Gymnogrammoideae, but the details need the volumes promised us for their proper discussion.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

THURSDAY, February 4.—*Committee present;* R. Ashworth, Esq. (in the chair), Messrs. C. Branch, A. Coningsby, D. A. Cowan, J. Cypher, J. Evans, G. Giles, A. Keeling, E. W. Thompson and H. Arthur (Secretary).

FIRST-CLASS CERTIFICATES.

Cypripedium Aureoma, Haddon House variety (*aureum* × *Desdemona*).—A flower of perfect shape; the ground colour of the dorsal sepal is green with a brown centre and broad white margin; the broad petals are greenish-yellow, the lip of a rather paler shade. From Mrs. M. SMITH.

Cattleya Vesta var. Puritan (*Snowdrop* × *Lady Veitch*).—A beautiful snow-white flower of good shape and texture. From J. B. ADAMSON, Esq.

Odontoglossum crispum, Grand Duke Nicholas.—A flower of the Doin type, white, with reddish-brown spots on the lip. From S. GRATRIX, Esq.

Cypripedium Evansiae (*Desdemona* × *Memoria Jerninghamiae*).—A fine flower; the dorsal sepal is pure white with a solid patch of reddish purple at the base; the upper half of the petal is reddish-brown and the lower half light yellow; the lip is reddish-brown. From Mr. JOHN EVANS.

Cypripedium Pathan (*Eurybiades* × *Mirum*).—A large, bold flower; the broad dorsal sepal has rose-purple spots on a white ground; the broad petals and lip are reddish-brown. From Messrs. KEELING AND SONS.

AWARDS OF MERIT.

Odontioda Juno var. Margaret; *O. Colinge var. J. B. Adamson*; *O. Bonar Law.*—From J. B. ADAMSON, Esq.

Cypripedium Ashton (*Christopher* × *San-Actaeus*).—From Mrs. M. SMITH.

GROUPS.

J. B. ADAMSON, Esq., Blackpool (gr. Mr. R. Taylor), staged a group for which a Gold Medal was awarded.

A Gold Medal was also awarded to S. GRATRIX, Esq., Manchester (gr. Mr. C. Branch), for a group including choice Cypripediums.

A large Silver-gilt Medal was awarded to the Hon. G. E. VESTEY, Southport (gr. Mr. B. Collins), for a miscellaneous group. A. HANMER, Esq., Buxton (gr. Mr. G. Giles), staged a group of Orchids to which a Large Silver Medal was awarded. A Silver Medal was awarded to Messrs. J. CYPHER AND SONS, Cheltenham.

FRIDAY, February 19.—*Committee present:* Capt. W. Horridge (in the chair), Messrs. H. Astley Bell, R. Ashworth, C. Branch, A. Coningsby, D. A. Cowan, J. Cypher, J. Evans, A. Keeling, E. W. Thompson and H. Arthur (Secretary).

FIRST-CLASS CERTIFICATES.

Odontoglossum Exworth var. Duke of York (*eximium* × *Aireworth*).—The sepals and petals are reddish-purple, the lip white with a dark blotch. *Odontioda Colinge var. Rosemary.*—A beautiful flower; the sepals and petals are coloured ruby-red with narrow white margins; the lip is white with a red blotch. A Silver Gilt Medal was also awarded. Both from J. J. BOLTON, Esq.

Odontioda Margaret (*ardentissimum* × *Bradshawiae*).—A fine flower of rich madder red.

Brasso-Cattleya British Queen, var. Leviathan.—A flower of good, even colour, with broad, well-set petals. The lip has a deep blotch and a yellow throat. Both from J. B. ADAMSON, Esq.

AWARDS OF MERIT.

Odontioda Sensation var. splendens (*Vuylsteakeae* × *Odm. crispum*): and *O. Mars var. Tigrina* (*Charlesworthii* × *Lawrenceanum*). From Mrs. M. SMITH.

Cattleya Clotho, Adamson's variety and *Odontoglossum Nora* (*illustrissimum* × *Dora*). From J. B. ADAMSON, Esq.

Odontoglossum Garnet var. Prince Charming (*Amethyst* × *crispum*). From J. J. BOLTON, Esq.

GROUPS.

J. B. ADAMSON, Esq., Blackpool (gr. Mr. R. Taylor), was awarded a Gold Medal for a group.

Large Silver Medals were awarded to groups exhibited by S. GRATRIX, Esq., the Hon. G. E. VESTEY and Messrs. J. CYPHER AND SONS, respectively.

Obituary.

G. Wallace Sinclair.—Mr. G. Wallace Sinclair, gardener to F. W. Cooper, Esq., Oulton Park, Tarporley, Cheshire, died under tragic circumstances from burns received while in the act of carrying out a valuable picture when the mansion caught fire; the roof suddenly collapsed and trapped him in the burning room, and although his son nobly extricated him from the flames, his burns and other injuries were so severe that he passed away on February 15. Mr. Sinclair's character was beyond reproach. He was a favourite with everyone he came in contact with. He was a first-class gardener and an able judge. Had the war not intervened his abilities as a Grape grower would have brought him to the front, as he had been preparing to produce Grapes from young vineries he had made at Peckforton, where it was my pleasure to see some of the finest finished Grapes in the British Isles. Mr. Sinclair served his apprenticeship at Nortonthorpe Hall Gardens, Yorks, under Mr. Finney, and went as journeyman under Mr. E. C. Plislow, Shadwell Court. Norfolk, then as foreman to Mr. Holway, Doneraile Court, Cork, and afterwards as fruit and plant foreman under Mr. John Munro at Falkland Park, South Norwood. His first appointment as gardener and steward was with Major Nichols, Kilbrack, Co. Cork, where he remained for five years, when he became gardener to Lord Tollemache, Peckforton Castle, where he served with distinction as farm manager during the war. Later, he took up an appointment as steward and gardener to C. J. Lamb Esq., Forest Hay, Sandiway, and he went to Oulton Park in January, 1926. Mr. Sinclair leaves a widow and two sons to mourn his loss The remains were interred at Whetton cemetery, Northwich, on February 19, and the funeral was attended by many hundreds of friends The death of Mr. Sinclair is a great loss to horticulture. *Robert Greenfield.*

THE LATE G. WALLACE SINCLAIR.

ANSWERS TO CORRESPONDENTS.

ARUM LEAVES DISFIGURED.—*P. L.* The blackish growth on the leaves of the Arums is produced by a fungus (Cladosporium), growing on the honey-dew deposited by aphides. Use a suitable insecticide to dispose of the green fly and afterwards cleanse the foliage.

BRANCHED TULIPS.—*The Grange.* Branched Tulips are not uncommon and specimens were illustrated in *Gard. Chron.*, May 15, 1909, p. 317. Branching is said to be due to division of the flower-forming tissue at a very early stage of the plants development.

FUCHSIAS AND SCENTED PLANTS.—*M. P. J.* The following are some good double Fuchsias with white corollas:—Ballet Girl, Sylvia, Dainty Lady, Molesworth, Mrs. E. G. Hill and Pink Pearl, with fiery pink sepals and corolla; six good singles are Mrs. Roberts, Mrs. Rundle, Flocon de Niege, Lustre, Amy Lye and Alice Hoffman. For scented plants you could grow Heliotropes, Freesias, Aloysia citriodora (the Lemon-scented Verbena), Perpetual-flowering Carnations, Hyacinths, Paper White Narcissus, Jonquils, Mignonette, Boronia megastigma, Daphne indica, Rhododendron Lady Alice Fitzwilliam, and the scented Pelargoniums, such as P. fragrans, P. Radula, P. capitata, P. crispum and P. quercifolium. We are in doubt as to whether you require the plants for a greenhouse or for a dwelling room.

NAMES OF PLANTS.—*H. P. W.* 1, Clerodendron Thompsonianum; 2, Epiphyllum truncatum; 3, Begonia species; send when in flower.

NARCISSUS BULBS FAILING TO FLOWER.—*C. H.* From the appearance of the flower buds we suspect that your treatment has been at fault, and that the trouble is not due to unsatisfactory bulbs. Unless Daffodils have been grown in cool conditions in the early stages of forcing and the pots well-filled with roots before they are introduced to a warm house, they usually fail, as in your case. Next season, endeavour to get the plants well-rooted by growing them in cool conditions, such as in a bed of ashes in the open or plunged in a cold frame, before bringing them into the forcing house.

PINE APHIS OR PINE CHERMES.—*D. S.* The insect on the bark of your Pines is the Pine Aphis (Chermes corticalis), a very troublesome pest. All that you can do is to spray the trees with a paraffin wash at intervals of six or eight days, over a period of two months during the late spring.

PUTTING GREENS.—*G. C.* In order to provide the greatest amount of pleasure for players a putting-ground should not to be level nor anything like level. On the other hand, pronounced obstructions in the form of "bunkers" are quite out of place, as the object of such grounds is to encourage a proficiency in putting and not in hitting. An ideal putting ground is one that has an undulating but well-kept surface. One of the most difficult public putting-grounds we are acquainted with is set out on a gently sloping lawn where to "hole" the ball successfully requires considerable skill. An area of three-quarters of an acre will provide, if carefully set out, space enough for eighteen holes.

SOIL FOR CHRYSANTHEMUMS.—*J. P.* We do not undertake to analyse soil for our readers. If you think the compost is unsuitable or something has been added causing injury to the plants, you still have time to obtain fresh cuttings, or if you are too late with some varieties, young rooted plants may be purchased very cheaply. In view of your suspicions, we advise you to see that no one has access to the house in which they are grown except those who are responsible.

Communications Received.—F. J. C.—F. B. W. F. S.—A. G.—Miss P.—G. S.—T. P.—A. D. C.—J. M.—D. D. R.—H. J. C.—A. A.—W. M.—G. H.—J. C.—A. T. J.—C. F.—W. M. M. D.—J. R. G.—R. D.—J. A. P.—T. W. S.—F. M.—B. F.

MARKETS.

COVENT GARDEN, Tuesday, March 2nd, 1926.

Plants in Pots, etc.: Average Wholesale Prices.

(All 48's except where otherwise stated).

	s. d.	s. d.
Adiantum cuneatum per doz.	12 0	15 0
—elegans	12 0	15 0
Aralia Sieboldii	9 0	10 0
Araucarias, per doz.	30 0	42 0
Asparagus plumosus	12 0	18 0
—Sprengeri	12 0	18 0
Aspidistra, green	36 0	60 0
Asplenium, per doz.	12 0	18 0
—32's	24 0	30 0
—nidus	12 0	15 0
Azaleas, 48's, each	4 0	6 0
Boronia megastigma, 48's, per doz.	30 0	36 0
Cacti, per tray —12's, 15's	5 0	7 0
Cinerarias, 48's, per doz.	18 0	21 0
Crotons, per doz.	30 0	45 0

	s. d.	s. d.
Cyclamens, 48's in variety, per doz.	24 0	30 0
Cyrtomium	10 0	25 0
Daffodils, 48's, per doz.	18 0	21 0
Genistas, 48's, per doz.	24 0	27 0
Hyacinths, large white, 48's, per doz.	21 0	24 0
Marguerites, 48's per doz.	18 0	21 0
Nephrolepis in variety	12 0	18 0
—32's	24 0	36 0
Palms, Kentia	30 0	48 0
—60's	15 0	18 0
Pteris, in variety	10 0	15 0
—large, 60's	5 0	6 0
—small	4 0	5 0
—72's per tray of 15's	2 6	3 0

Cut Flowers, etc.: Average Wholesale Prices.

	s. d.	s. d.
Adiantum decorum, doz. bun.	18 0	21 6
cuneatum, per —doz. bun.	12 0	15 0
Anemone fulgens, per doz. bun.	3 0	4 0
Arums (Richardias) per doz.	4 0	5 0
Asparagus plumosus, per bun., long trails, 6's,	2 0	3 0
med. sprays	1 6	2 6
short	0 9	1 3
—Sprengeri, bun long sprays	1 6	2 0
med. ,,	1 0	1 6
short ,,	0 4	1 0
Azalea, white, per doz. bun.	6 0	7 0
Camellias, white per box, 12's	2 0	2 6
Carnations, per doz. blooms	2 0	3 0
Chrysanthemums white blooms, per doz.	5 0	8 0
—white spray per doz. bun.	36 0	48 0
Croton leaves per doz.	1 9	2 6
Daffodils, Golden Spur, single, per doz. bun.	6 0	8 0
—Emperor, per doz. bun.	8 0	10 0
—Henry Irving, per doz. bun.	3 0	4 0
—King Alfred, per doz. bun.	9 0	12 0
—Sir Watkin, per doz. bun.	4 0	8 0
—Victoria, per doz. bun.	8 0	10 0
—princeps, per doz. bun.	3 0	4 0
Fern, French, per doz. bun.	10 0	12 0
Forget-me-not, per doz. bun.	9 0	12 0
Freesia, white, per doz. bun.	2 6	4 6
French Flowers—		
—Acacia (Mimosa) per doz. bun.	15 0	18 0
—Anemone, De Caen, per doz. bun.	6 0	7 0
—Eucalyptus per pad	4 0	5 0
—Marguerites, yellow, per doz. bun.	4 0	4 6
—Narcissus, Paper White, per doz. bun.	2 6	3 0
—Narcissus Soliel d'Or, per doz. bun.	2 6	3 6
—Parma Violets, per bun.	2 6	3 0
—Ranunculus, scarlet, per doz. bun.	6 0	7 0

French Flowers—	s. d.	s. d.
—Ranunculus, carmine, per doz. bun.	7 0	8 0
—orange, per doz. bun.	24 0	30 0
Heather, white, per doz. bun.	10 0	12 0
pink, per doz. bun.	9 0	12 0
Hyacinths, large white, per doz. spikes	3 0	4 0
Iris tingitana, per doz. blooms	3 0	4 0
Lilac, white, per doz. sprays	6 0	8 0
Lilium longiflorum long, per doz.	5 0	6 0
—speciosum album, long, per doz.	—	—
—speciosum rubrum, long, per doz. blooms	3 6	4 0
—short, doz. blooms	2 6	3 6
Lily-of-the-Valley, per doz. bun.	18 0	24 0
Narcissus Grand Primo, per doz. bun.	2 6	3 0
—Narcissus ornatus, per doz. bun.	4 0	6 0
Orchids, per doz.		
—Cattleyas	24 0	30 0
—Cypripediums	5 0	7 0
Prunus triloba, per doz. bun.	2 6	3 6
Roses, per doz. blooms—		
—Richmond	6 0	10 0
—Madame Butterfly	12 0	15 0
Smilax, per doz. trails	2 6	3 0
Snowdrops, per doz. bun.	2 0	3 0
Stock, double white, per doz. bun.	4 0	5 0
Tulips—		
—white	18 0	24 0
—yellow	18 0	24 0
—scarlet	18 0	24 0
—pink	15 0	18 0
—W. Copland, per doz. bun.	15 0	21 0
—Clara Butt	24 0	30 0
—Couronne d'or, per doz. bun.	18 0	21 0
—Murillo, per doz. bun.	15 0	18 0
—Tea Rose, per doz. bun.	18 0	21 0
—Lucretia	18 0	24 0
—Double yellow	24 0	27 0
—Darwin—		
—Bartigan	24 0	27 0
—Elizabeth	24 0	30 0
—Wm. Pitt	24 0	27 0
—Farncombe		
—Sanders	24 0	27 0
—Le Notre	24 0	27 0
—Rev. Ewbank	18 0	24 0
Violets	2 0	4 0

REMARKS.—Owing to the improved weather conditions much larger supplies have been received from all quarters during the past week. Very heavy consignments were received on Wednesday and Thursday of last week from the Channel Islands and the west of England, consisting mostly of Daffodils, white and yellow Narcissus, Violets, Anemones and Tulips. Of the home-grown Daffodils, Emperor, Victoria, Barrii and King Alfred are realising the best prices. Amongst Tulips Darwins are receiving more attention owing to their very fine quality. The varieties include Wm. Copland, Clara Butt, Bartigan, Elizabeth, Pride of Haarlem, Wm. Pitt, Farncombe Sanders and Le Notre. Roses are increasing in quantity almost daily; the varieties Columbia, Madame Butterfly, Hoosier Beauty, Sunburst and Richmond are much easier in price owing to a much larger supply. Snowdrops are practically finished for the season, but the quantities of Violets exceed the present demand. Sweet Peas are becoming more plentiful.

Vegetables: Average Wholesale Prices.

	s. d.	s. d.
Artichokes, green per doz.	2 0	3 0
Asparagus—		
—English	6 0	7 0
—Cavaillon	5 0	6 0
—Lauris	6 0	8 0
—Sprue	1 3	1 6
Beans—		
—Madeira, per basket	7 0	10 0
Boxes	7 0	10 0
—Guernsey & Worthing forced	2 6	3 0
Beets, per cwt.	6 0	8 0
Celery, per doz. tans	24 0	27 0
Cauliflowers—		
English, crate	6 0	8 0
—St. Malo, per crate	4 0	6 0
New Carrots, per doz. bundles	10 0	12 0
Chicory, Belgian, per lb	0 2½	0 3½
Cucumbers, per doz.	12 0	18 0
Endive, per doz.	2 0	3 0
Horseradish, per bundle	1 3	1 6
Lettuce, round, per crate	4 0	7 0
Mint, forced	4 0	8 0
Mushrooms, —French	1 6	2 0

	s. d.	s. d.
Mushrooms,		
—cups	2 0	3 0
—Broilers	1 0	1 6
Onions—		
—Dutch	7 6	8 0
—English, per cwt.	8 0	9 0
—Valencia	8 6	11 8
Parsnips, per cwt.	7 0	9 0
Peas, French crate	6 0	10 0
Potatos—		
—Dunbar	7 0	8 0
—King Edward, per cwt.	6 0	8 0
—others	4 6	6 0
New Potatos—		
—Algerian per lb.	0 1½	0 2½
—Azores, per case	15 0	20 0
—Canary Island	16 0	20 0
—Guernsey	1 0	1 3
Rhubarb, forced, per doz. bundles	1 0	1 6
—outdoor	6 0	7 0
Seakale, per punnet	1 6	2 0
Sprouts, per ½ bag	2 0	4 0
Savoys, per doz.	3 0	4 0
Tomatos, Canary Islands Best	27 6	30 0
Turnips, per cwt.	6 0	8 0
—new, per bun.	0 6	1 5

Fruit: Wholesale Average Prices.

	s. d	s. d.
Apples, Cooking—		
—Bramley's Seedling	6 0	10 0
—Lane's Prince Albert	6 0	8 0
—Newton Wonder	6 0	8 0
Apples, American		
—Oregon Newtown	13 6	17 0
—York Imperial	28 0	34 0
—Winesap	10 6	12 6
Apples Nova Scotia—		
—Fallawater	18 0	21 0
—Russet	26 0	35 0
—Stark	12 0	18 0
—Baldwin	12 6	22 0
Bananas	15 0	27 6
Chestnuts, Italian, per bag	10 0	15 0
Dates (Tunis), per doz. cartons	3 6	4 0
Grapes, per lb—		
—English Colmar	3 6	5 0
—Almerian, per barrel	15 0	30 0
Grapes, Belgian—		
—Gros Colmar	1 6	2 6

	s. d.	s. d.
Grape Fruit,		
—Jamaica	27 6	35 0
—Isle of Pines	27 6	35 0
—Pines	2 0	4 0
—Florida	32 6	40 0
Lemons, Messina, per box	10 0	12 6
—Malaga	18 0	22 0
Oranges—		
—Denia	15 0	45 0
—Jamaica	12 0	16 0
—Murcia	15 0	45 0
—Jaffa	20 0	27 0
—Palermo Bitters	11 6	12 6
—Seville	14 0	20 0
South African fruits—		
—Nectarines	7 0	9 0
—Peaches, per box	7 0	10 0
—Plums, Wickson	4 0	6 0
—Kelsey	6 0	9 0
—Satsuma	5 0	6 0
—Apple	8 0	12 0
—Pears, Williams's Bon Chretien	4 0	5 0
—Beurré Hardy	4 0	6 0
—Louise Bonne of Jersey	4 6	6 0
—Duchesse	3 0	4 6

REMARKS.—The volume of business transacted is very satisfactory, trade, no doubt, being helped by the much improved weather. English Apples are almost finished, excepting for those still in cold store. Imported Apples are also less plentiful. South African fruits continue in good demand and generally they are in good condition. The bulk of those received from the Cape consist of Peaches, Nectarines, Plums and Pears. Grapes are not so plentiful and are selling fairly well. Tomatos from the Canary Islands are in firm request, and Bananas from the same source are also a good trade. Cucumbers have benefited by the brighter weather; good prices are obtained for them. Forced Beans are a steady trade, supplies being mainly from Guernsey and the Worthing district. New Potatos from Guernsey are more plentiful but are maintaining a good price. Forced Rhubarb has been a poor business all the week, increasing quantities of outdoor Rhubarb no doubt being responsible for the reduced values. A larger amount of Asparagus from France is available and is selling fairly well. Consignments of Cauliflowers from northern France are still heavy, and this, with large supplies from Guernsey and the west of England, has brought down values somewhat. Mushrooms are abundant and comparatively cheap. Salads are wanted and selling freely. Green vegetables are in demand. Trade in old Potatos is slow.

GLASGOW.

THE cut flower market developed weakness, which was most acute on Tuesday, and while a slight recovery set in on Friday, prices reflected material losses on the weeks' trading. Guernsey Daffodils arrived in great quantity and the condition of Tulips was affected by the spell of mild weather. Highest and lowest prices are recorded in the following list of Tulips:—Bartigon, W. Copland, Prince of Austria and Couronne d'Or, 8d. to 1/-; Ibis, 10d. to 1/-; Flamingo, Lucretia and Farncombe Sanders, 9d. to 1/-; Tea Rose and Murillo, 7d. to 10d. for best, and 3d. to 7d. for ordinary; Azalea, 1/3 to 1/6; Salmonette and Vuurbaak, 1/- to 1/3; Rose Tendre, 10d. to 1/-; Thomas Moore, Yellow Prince and Gris-de-lin, 6d. to 8d. Guernsey Daffodils sold at 1/- to 2/- per dozen bunches. English-grown princeps, Golden Spur and Sir Watkin, 6d. to 8d. per bunch; ornatus, 3d. to 6d. and Narcissi, 1/- to 2/-. Mimosa was worth 1/- to 2/6 per pad; Carnations, 1/6 to 2/6 per dozen; Lily-of-the-Valley, 1/3 to 1/6 per bunch; English Violets, 6d. to 1/- per dozen; French Violets, 1/- to 1/6 per pad; and Parma Violets, 1/- to 2/- per bunch. Richardias (Guernsey) sold at 2/- to 3/- per dozen. Lilium longiflorum (Harrissii), 3/- to 4/- per bunch; Smilax, 1/- to 1/6; and Asparagus Fern, 6d. to 1/3. Hyacinths in bowls made 1/6 to 2/- each; and strong Wallflower plants, 1/- to 1/6 per box.

The tone of the fruit market was dull generally and movements in values were towards a lower level. Prices for Oranges were irregular, certain counts being dearer and others cheaper; 360's and 504's ranged from 12/6 to 14/- per half-case; 300's, 14/- to 18/-; 240's and 200's, 15/- to 20/-; 420's, 18/- to 23/-; large, 20/- to 42/-; 714's, 18/- to 26/-; Jaffa, 144 and 152, 18/- to 20/-; 136's, 17/- to 20/-; Californian Navel, 26/- to 32/-; and Grape Fruit, 26/- to 40/-. South African fruit was in good demand at the following quotations:—Peaches, Freestone, 7/- to 9/-; Alberta, 5/6 to 7/-. Pears, Williams's Bon Chretien, 4/3 to 6/-; Louise Bonne of Jersey, 4/6 to 6/-; Plums, Satsuma, 6/- to 7/-; Kelsey 6/6 to 8/6; Californian Winter Nelis Pears averaged 17/- per half-case. English Gros Colmar Grapes made 3/- to 5/- per lb., and Belgian, 2/- to 2/6. A quiet but steady business was reported in Apples at the following values:—British Columbia: Jonathan, 10/6 to 12/6 per case; Grime's Golden, 8/- to 9/-; Spitzenberg, 9/6 to 12/-; Delicious, 13/- to 15/-; Oregon: Newtown, 13/- to 15/6; Winesap, 11/- to 14/6; Delicious, 14/- to 16/6; Spitzenberg, 9/- to 11/6; United States: Greening, 26/- to 36/- per barrel; York Imperial, 28/- to 34/-; Ben Davis, 14/- to 18/-; Gano, 15/- to 20/-; Baldwin, 14/- to 20/-; Albemarle, 26/- to 40/-; Nova Scotia: Russet, 16/- to 23/-; Ben Davis, 12/- to 14/-; Baldwin, 12/- to 16/-; Canadian: Greening, 28/- to 34/-; and Baldwin, 20/- to 26/-.

In the vegetable section Asparagus averaged 7/- per bunch; Paris Green, 8/-; Sprue, 1/6; Endive, 3/- to 4/- dozen; Seakale, 2/6 to 3/-; French Lettuces, 3/6 to 4/- (outdoor-grown), 1/6 to 2/- (indoor); Salad, 2/6; Radishes, 4/- to 4/6; Syboes, 7/-; Artichokes (white), 1/9 to 2/- per stone; Cucumbers, 1/5 to 1/8 each; and Rhubarb 36/- to 40/- per cwt.

CATALOGUES RECEIVED.

J. CARTER AND CO., Raynes Park.—Farmers' Guide.

SUTTON AND SONS, Reading.—Farmers' Year Book.—Garden equipment.

CIVIL SERVICE SUPPLY ASSOCIATION, LTD., 425, Strand, W.C.—Seeds and garden requisites.

AMOSS PLANT AND CO., Rockhill Nurseries, Hadleigh, Essex.—Alpines, hardy perennials, etc.

T. BATH AND CO., LTD., Savoy Street, Strand, W.C.—Garden furniture, etc.

WILSON AND AGAR, Crown Nurseries, London Road, Reading.—Gladioli.

MAURICE PRICHARD AND SONS, Riverslea Nurseries, Christchurch.—Alpine and herbaceous plants.

SIMAR ROTOTILLERS, 58, Compton Street, Goswell Road, E.C.1.—Cultivators.

STUART LOW AND CO., Bush Hill Park, Middlesex.—Carnations.

SALE AND SON, LTD., Wokingham, Berks.—Farm Seeds.

SCHEDULES RECEIVED.

TAUNTON AND DISTRICT CHRYSANTHEMUM AND FRUIT SOCIETY.—Twelfth annual show to be held on Thursday, November 4 in the Territorial Hall, Taunton. Secretary, Mr. W. H. Loosemoore, Tregenna, Greenway Road, Taunton.

NATIONAL SWEET PEA SOCIETY.—Twenty-sixth exhibition, to be held in association with the Cheltenham Floral Fete, at Montpellier Gardens, Cheltenham Spa, on Wednesday and Thursday, June 30 and July 1. Secretary, Mr. A. C. Bartlett, 19, Bedford Chambers, W.C.2.

GARDENING APPOINTMENTS.

Mr. David Crombie, previously Gardener and Bailiff to F. H. WALKER, Esq., Great Martin, Shurlock Row, Twyford, Berkshire, as Gardener and Bailiff to Sir ANTHONY THORNHILL, Bt., Burnham Hall, Claydon, Ipswich, Suffolk.

Mr. Albert Adams, previously Gardener to MAJOR BAYLEY, Worthington Town Thorns, near Rugby, as Gardener to MAJOR McGOWN, Bledlow Ridge, West Wycombe, Buckinghamshire.

Mr. C. A. Corke, formerly Organiser and Instructor in Horticulture at the VI. Division School (Irish Command), and lately Gardener to MAJOR T. S. IRWIN, Justicetown, Carlisle, as Gardener to T. H. BARNES, Esq., Oak Cottage, Sudbury, Derbyshire (Thanks for 2/6 for R.G.O.F. Box.—EDS.).

Mr. S. Hughes, for the past four-and-a-half years Foreman at Darley Abbey, Derby, as Gardener to S. SMITH, Esq., Oxton Hall, Tadcaster, Yorkshire. (Thanks for 2/- for R.G.O.F. Box.—EDS.).

THE
Gardeners' Chronicle

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AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 41·9.

ACTUAL TEMPERATURE—
The Gardeners' Chronicle Office 5, Tavistock Street, Covent Garden, London, Wednesday, March 10, 10 a.m. Bar. 30·5. Temp. 48°. Weather, Bright, with cold wind.

Insect Pests of the Cabbage.

THE longer a man cultivates his garden and the more he studies the voluminous literature on garden pests, the surer grows the conviction that in the rotation of crops, both in the vegetable quarters and in the seed-bed, lies the chief means of securing for his plants a reasonable immunity from disease. This being so it should always be the endeavour of the gardener to carry out rotational cultivation to the fullest extent possible; changing each year not only the location of the vegetable crops, but also that of the seed beds and frames and the soil itself in which the seedlings are raised. Consider, for example, the plants of the Cabbage tribe, which form such an important source of vegetable supplies. The mycologist and entomologist have drawn up a truly formidable list of the fungous and insect pests which attack these plants—some in the seedling and some in the adult stage. There are, for example, finger-and-toe and the damping-off fungus (Rhizoctinia), and there are the Cabbage maggot or root fly (known sometimes as Hylemia brassicae and sometimes as Phorbia brassicae), the larvae of which make long tunnels in the roots; and the Cabbage gall weevil which causes rounded, tumour-like swellings on the roots of Cabbage and of Turnip, simulating—albeit in a more regular way—the distortions of growth caused by finger-and-toe. Then there are the leaf-destroying enemies—the Cabbage butterflies—the Large White and Small White (Pieris brassicae and Pieris rapae) which sometimes appear suddenly in vast numbers and riddle the leaves till all their tissues are devoured. It is, of course, a happy garden in which none of these pests occur in such numbers as to cause serious loss, but in most gardens less auspiciously absolved from epidemics, vigilance and forethought may prevent the occasional severe losses which neglect of these garden virtues is sure to entail. Finger-and-toe should, of course, never appear at all in the private garden. It is a disease of poor, light, lime-hungry soils. Yet there are many gardens on light, sandy soil in which the pest does make its appearance. Where it does, the best remedial measures are those directed to the improvement of the soil. It is stated that something may be done to prevent the disease from attacking seedlings by applying a weak solution of corrosive sublimate to the seed bed. A quarter of an ounce of finely-powdered corrosive sublimate dissolved in four gallons of water appears to prevent infection if applied early enough and if the dose be repeated once or twice. Care, however, must be exercised that the solution be not too strong. This remedy—or partial remedy—for finger-and-toe has been applied also, with very considerable success to the protection of plants of the Cabbage tribe from the Cabbage maggot, attack by which pest often leads, particularly in market gardens in America, to great loss of seedling plants. The most recent experiments* in the prevention of loss from this cause, have shown that by watering the seed-bed with corrosive sublimate, one ounce to ten gallons of water, applied at the rate of one gallon to twenty--forty feet of row, the damage caused by this pest may be reduced to negligible proportions. For the method to succeed, the first treatment should be applied so soon as the plants are well through the ground. With spring-sown Cabbage, this should be about May, at which period the small, greyish fly, looking very like a slender and very active house fly, is busy laying its eggs at the base of the seedling Cabbage plants. Inasmuch as poisons such as corrosive sublimate soon lose their potency when mixed with soil, two further doses at weekly intervals are generally necessary. Another precaution that may be adopted is to dip the seedlings at transplantation time in water or a very weak insecticide. The effect of this treatment is to dislodge the glistening white eggs attached to the bases of the plants. The auther of the *Bulletin* just cited has also found that the maggot may be deterred from attacking the seedling Cabbages by giving a liberal dressing of Tobacco dust to the seed bed. The dust, which is applied at the rate of one pound to thirty—forty feet of row, has proved an excellent means of reducing attack by the Cabbage maggot and appears, moreover, to favour the growth of the seedlings, so that the manurial value of the Tobacco dust may compensate somewhat for the cost of applying it. There remains, of course the method much practised by market growers in New York State, of covering the seed bed with cheese cloth, and there is also the tarred disc method which consists in protecting the soil at the collar of each plant with a suitably cut, tarred-disc. Lastly, it is to be remembered that systematic cultivation of the ground, such as is practised by all good gardeners, is of all means the most important for ridding the ground of pests. By it large numbers of pupating inimical insects are exposed to the weather and to the attention of birds, and it would be well for gardeners on light land, who are inclined to leave digging until spring, to remember that by deferring this work, though they may perhaps gain advantage in other directions, they lose the benefit of the winter and spring cleaning which attends on autumn digging.

Afforestation of the Richmond and Gordon Estates.—Some fine work has been accomplished during the winter months in the planting of large areas around Gordon Castle, Fochabers, Morayshire, the chief Scottish seat of the Duke of Richmond and Gordon. Not only will forestry benefit, but the large amount of labour entailed has given welcome employment to large bodies of men during the most critical labour period of the year. The work has been done mostly at Ortagar, and at the part of Slorach's wood burned down in 1919. In all there have been nearly 130 acres planted this season, each acre taking 4,500 trees. All were supplied from the finely equipped estate nursery, the plants being in excellent condition. Mr. Clark, head forester, under whose supervision the work was carried through, again adopted the favourite system of "close space planting," contending that it has always given the best results in the Gordon Castle woods. It may be interesting to note that during the past ten years the Duke of Richmond and Gordon has planted over 1,000 acres, the plants required numbering over five millions. Would that all our big-landed proprietors were in a position to do likewise.

Exports of Potatos from France.—The French Ministry of Agriculture has made regulations similar to those in force last year, providing that between March 1 and May 1 new Potatos may only be exported within the limits of a quota. The quota for each centre of production may not exceed ninety per cent. of the average quantity exported during the past three years. The Potatos must be accompanied by a certificate, issued by an authorised association, and containing a declaration that the fixed quota has not been exceeded. Imports into this country of Potatos from France in March and April last year were 128,135 cwts., followed by 1,357,238 cwts, in the following two months, practically all of these coming in June.

Horticultural Lectures at Chiswick.—The Chiswick Public Library and Museum Committee has arranged for a course of three lectures on horticultural subjects to be given at the Chiswick Public Library. The course is as follows: Thursday, March 11, "Garden Flowers," by Mr. John Weathers, Isleworth; Thursday, March 18, "The Cultivation of Vegetables," by Mr. Wm. H. Johns, N.D.H., superintendent of the Bermondsey parks; and Thursday, March 25, "Out-door Chrysanthemums," by Mr. Charles H. Curtis, F.L.S. Admission is free and the lectures begin at 8 p.m. sharp.

Forthcoming French Horticultural Events.—The annual spring exhibition of the French National Horticultural Society will be held at Cours-la-Reine, Paris, from the 28th of May to the 6th of June. The programme will be substantially the same as in 1924. The work of demolition of the buildings erected on the site for the Exhibition of Decorative Arts last year is proceeding apace, and exhibitors will be glad to be back in their old position. As mentioned in our issue of February 6th (p. 92), the French Chrysanthemum Exhibition is to be opened on November 4, at Blois; it is to last until the 9th of the month, and will be of an international character, English, Belgian, Swiss and Italian growers being asked to exhibit. Besides Chrysanthemums, which will be the main feature, there will also be exhibits of fruits, vegetables, fruit trees, and ornamental shrubs. The venue of the Federation of French Horticultural Societies has now been definitely fixed at Rheims, and the dates provisionally as July 5th to 7th.

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* "Control of the Cabbage Maggot in the seed bed." By Hugh Glasgow. *Bulletin* No. 512, of the New York State Agricultural Experiment Station, Geneva, New York.

Traffic Problems and the London Parks.—A suggestion that certain parts of Hyde Park should be utilised—together with adjacent streets—for the purpose of dealing with London's traffic problems, has caused a good deal of uneasiness among those who are anxious there should be no spoliation of the open spaces of the metropolis. A statement made in the House of Commons by Col. W. Ashley, Minister of Transport, serves in some measure to allay any fears in regard to this matter; he said he would not countenance the turning of London Parks into traffic channels, and that he would deprecate any action which might interfere with the amenities of Hyde Park, unless a case of overwhelming necessity arose.

Increasing our Timber Resources.—Under the auspices of the Edinburgh University Forestry Society, Mr. Harry George Younger, who gave the estate of Benmore to the nation, delivered an address on "Timber Growing," in which he urged on various grounds the importance of greatly increasing our timber resources. He mentioned that between sixty and seventy million tons of timber were imported last year into this country, to pay for which a considerable amount of money had to be sent abroad. He left it to the professors and the Forestry Commission to tell them what proportion of that amount might have been grown in this country; certainly a third and possibly a half, without restricting our food supplies by more than an infinitesimal amount, and no one could deny what a great economic gain that would be. In forestry, more than anything else, it was of vital importance that they should learn their work from the elementary stage upwards. In 1914, just before the war, they had a visit from the leading continental forestry experts, and M. Parde, the well-known French expert, told them what he had seen was a revelation to him. While they could not say a great deal about our sylviculture, our arboriculture they thought wonderful, and his opinion was, that a good many species of Conifers could be grown on the western side of Scotland at nearly double the speed they could be grown in any other part of the world, and that was true. Great forests could be grown in Scotland comparatively rapidly, but it would be necessary for the forester to take the scientist along with him. Changed conditions were continuing to arise, and new diseases seemed to be affecting trees. Referring to taxation burdens, Mr. Younger said the taxation following the war had completely upset his forestry ambitions. What had prevented him from planting was the increasing cost of it, and the knowledge that on the small scale on which he could do it, the planting cost per acre was so high as to make it foolish to try. Planting costs must be kept low if a wood was to pay. After a strenuous commercial life of over forty years, experience told him that the man who learned his job thoroughly came out on top. If he were starting planting again and was looking for a good forester he would not choose a man because he knew the Latin name of every species, but the man who could tell a well-grown tree from a bad one, and who could be relied on to grow his own trees well. The chief blessing in this world was good health. Wealth, land, success of all kinds were worth nothing without good health, and in the very nature of it a foresters' occupation must be the healthiest of all. At the annual dinner of the Society, held in the evening, Mr. Younger announced that he desired to commemorate his hon. presidency by presenting a gold medal to the best student each year.

Mr. F. G. Cousins.—Mr. Cousins, who recently returned to his native Devon to take charge of the beautiful and interesting public gardens at Torquay, is well known to horticulturists in and around London, having been Superintendent of the Royal Botanic Gardens at Regent's Park for five years. The difficulties at Regent's Park, on account of conflicting desires and lack of funds necessary for the proper maintenance of the Botanic Gardens, are notoriously great, but with admirable tact and professional skill Mr. Cousins overcame difficulties and maintained the gardens in a much more efficient condition than he found them. In addition to his legitimate work as chief of cultivation, the supervision of the training of students, the arrangements for flower shows and other functions, and contributing valuable articles periodically to the *Journal* of the Society, Mr. Cousins made time and somehow found space in the already restricted glasshouse accommodation to grow "the Spices of the Indies," as well as Palms and other decorative plants which the West Indian authorities sent over for the embellishment of their garden at the British Empire Exhibition (1924) at Wembley. At times, the condition and season in which these plants reached London taxed Mr. Cousin's cultural skill almost to the utmost, but how well he overcame the difficulties was fully apparent to the numerous visitors who admired the beautiful and interesting exhibition garden at Wembley. Mr. Cousins was trained at Kew, entering from Exeter in 1906, and became sub-foreman of the Orchid Department. Soon after leaving Kew he was successively an Inspector of Plant Diseases for the Kent County Council and a Deputy Inspector in the Horticultural Department of the Board of Agriculture. For a comparatively short time before taking up the Regent's Park appointment, he organised the Potato and Show Departments of Messrs. Bees, Ltd., at Liverpool. He is a member of the R.H.S. Floral Committee and carries with him to Torquay the good wishes of many professional friends and their confidence that he will find in a district with such a kindly climate abundant scope for his abilities.

MR. F. G. COUSINS.

Sweet Pea Annual for 1926.—Sweet Pea enthusiasts always look forward to the publication of the *Sweet Pea Annual* by the National Sweet Pea Society, while members of the Society become restless if the publication is delayed. The present issue contains much that is interesting, but we do not admire the arrangement of articles, and suggest that the more important subjects should occupy the more prominent positions. Educational subjects, cultural or otherwise, are omitted; this is to be regretted because in so important a Society there are always numerous recruits who appreciate such articles from experts. Mr. Lester L. Morse contributes critical observations upon the show held in 1925; Mr. G. H. Burt reviews the same exhibition and his "asides" are as interesting as his criticisms. "Sweet Peas in Vancouver Island" is from the pen of Mr. Lumley Perrier, formerly an enthusiastic Sweet Pea grower in England. Mr. Yuille discusses "Sweet Peas in Scotland," and Mr. E. R. Janes makes a strong appeal for increased membership of the N.S.P.S., and points out how provincial members could help in this important matter. In addition to the Report of the Floral Committee for 1925, Mr. C. H. Curtis contributes a Report of the Henry Eckford Memorial Fund, a breezy biographical notice of Mr. Andrew Ireland and the obituary notes of two old and valued members—Mr. Whitpaine Nutting and Mr. Horace J. Wright. Considerable space is occupied by records of the Society's proceedings, names and addresses of members and, of course, there are the Classification Lists and the List of Too-Much-alike varieties, all of great value to Sweet Pea lovers.

Veitch Memorial Medal for Alpines.—As announced some weeks ago, the Council of the Royal Horticultural Society offers a Gold Veitch Memorial Medal for the best exhibit of alpines in pots staged by an amateur at the show which will be held at Vincent Square on March 23rd and 24th. Intending exhibitors are reminded that application for space should reach the Secretary, R.H.S., Vincent Square, S.W.1, not later than by the first post on Wednesday, March 17.

Moulds and Mildews.—This was the subject of Professor Drummond's fourth and last lecture of his series on "Town Botany in Winter," delivered at Glasgow University on the 6th inst. under the auspices of the Workers' Educational Association. Discussing the vast group of fungi which were either parasites obtaining their nourishment from other living organisms, usually plants, or saprophytes which lived on dead organic matter, he explained the composition of the Mushroom, which represented the most familiar type of fungi. Only green plants have the power of independent nutrition, and it was a peculiarity of fungi that they were not green. After a passing reference to disease-producing plants, the lecturer commented on Black Rust in Wheat which did not pass from one year's crop to the next direct, but only through the medium of the Barberry. Yellow Rust common to cereals was caused by a fungus. Smut of Wheat was due to a fungus reproduced in enormous masses inside the ripening grain. Smut of Barley, he said, was controlled by washing the seed in formalin or hot water and had practically vanished in most European grain-producing countries. Canker of trees next came under the lecturer's observation and when speaking on Wart Disease of the Potato he explained that it was due to a fungus which found its way to the cells of the Potato, thereby setting up an irritation which caused the warted structure. The spores may be in the soil for seven or eight years, and so far it had been found impossible to kill them. The common moulds which appear on old bread and cheese, over-ripe fruit or other stale foodstuffs, and the Yeast plant, were described as saprophytic fungi. In conclusion Professor Drummond said that the main purpose of the lectures was to suggest there was ample scope well within the confines of a great city, and at an unpromising time of the year, for personal observation of many different aspects of plant life. Personal observation, he said, is the essence of scientific knowledge. Books and lecturers were helpful in putting the student on the right track, but what was thoroughly learned was what one discovered for oneself.

Crocuses naturalised in Grass.—A large breadth of Crocuses naturalised in grass is one of the prettiest features in gardens and parks at this time of the year, and these harbingers of spring give great pleasure to all classes, and especially to town dwellers. Many of our public parks have been gay with these pretty flowers during the past few weeks, and such places near the metropolis as Kew Gardens, Hyde Park and Hampton Court have been visited by large numbers especially to inspect the Crocuses. The winds have been a little unkind to the flowers and they are on the wane, but still very attractive in many favoured spots; an especially pretty spot in Hyde Park just now is the bank of Crocuses near the Ranger's Lodge, whilst several other patches under the trees and elsewhere are to be found in the enclosures near Hyde Park Corner, and at the back of the flower walk in Kensington Gardens. The illustration in Fig. 89 shows many thousands of Crocuses in bloom in Hampton Court Gardens, and as it is the custom now to have special days for special flowers, a Crocus day, as well as a Horse Chestnut day, is associated with this old-world park and garden. It will be seen that many of the Crocuses are growing beneath large trees, and in such positions they not only appear to advantage, but succeed admirably, for by the time the trees are draining the soil of its moisture, the Crocuses are in their resting stage.

Scholarships for Agricultural Workers.—The Ministry of Agriculture announces that under the scheme for establishing scholarships and maintenance grants for the sons and daughters of agricultural workmen and others, a number of scholarships tenable at University Departments of Agriculture, Agricultural Colleges and Farm Institutes, are offered for award this year. The scholarships are limited to sons and daughters of agricultural workmen and of other countryside workers in similar financial circumstances, and the awards cover all reasonable expenditure involved (tuition, board, outfit, travelling, etc.). Provided a sufficient number of suitable applicants is forthcoming, ten Class I Scholarships will be offered for the degree courses in agriculture or horticulture, or for the course of M.R.C.V.S. at the Royal Veterinary College; ten Class II Scholarships for two-year diploma courses in agriculture, horticulture, dairying and poultry-keeping at Agricultural Colleges; and about one-hundred-and-twenty Class III Scholarships for short courses at Farm Institutes. Forms of application and full particulars of the scholarships may be obtained from the Secretary, Ministry of Agriculture and Fisheries, 10, Whitehall Place, London, S.W.1., or locally from the Offices of County Councils. The last date for receiving applications is April 30. This scheme was approved in 1922 for an experimental period of five years, and this is the last offer of awards under the experiment. After the selection of scholars for the present year has been completed, the question whether or not the scheme should be continued will be considered.

Scotch Potato Sales.—The fourth annual sale of seed and ware Potatos organised by Messrs. Smellie and Sons, Hamilton, was held on Friday of last week, when consignments were offered from a wide area extending from Morayshire in the north to Peebles in the south. Chief interest centred in a lot of the new variety Arran Consul, offered by Mr. Donald McKelvie, Lamlash. After spirited bidding, the tubers were sold at £60 per ton, thus making the top price of the market. Other prices were as follow:—Kerr's Pink, 77/-; Golden Wonder, 100/-; Great Scot, 90/-; Arran Comrade, 97/-; Arran Chief, 72/6; Immune Ashleaf, Tinwald Perfection, Epicure and Sutton's Abundance, 75/-; King Edward, 90/-; Sharpe's Express, 77/6; Dalhousie, 80/-; and British Queen, 52/6. A number of lots of ware Potatos realised from 40/- to 60/- per ton. At Messrs. Lawrie and Symington's sale there was a brisk demand for seed grown in the district, and up to 106/- was paid for Majestic, 101/- for Arran Chief, 97/- for Epicure, 70/- for British Queen, and 91/- for King Edward. The sales aggregated 375 tons.

Exhibition of Garden Design.—The Royal Institute of British Architects is proposing to arrange an exhibition of drawings, prints, plans and photographs, illustrative of garden design, in their galleries during April, to include designs of gardens old and modern, public and private, British and continental. The exhibition will continue from April 7 to April 21, and a lecture on "Garden Design" will be given by Mr. F. Inigo Thomas, F.S.A., on April 14, at 5 p.m. Members of the R.I.B.A. who have in their possession prints, photographs and drawings (measured or otherwise) which are suitable for this exhibition, are invited to submit them for the consideration of the selection committee. The following conditions are to be observed:—(1) The exhibition is intended primarily to be one of garden design and planning but illustrations of garden architecture and ornaments, such as orangeries, pergolas and statuary, may be submitted if desired. (2) Exhibits should be in reasonably good condition for exhibition purposes. (3) Photographs should be as large as possible, unless they are submitted merely to illustrate a plan, and should be mounted. They need not be framed. (4) All exhibits should be clearly marked with their title and the owner's name and address. (5) Exhibits should be addressed to the Secretary, Royal Institute of British Architects, 9, Conduit Street, London, W.1., and must be received by him not later than March 20. (6) All exhibits will be insured against all risks while in possession of the R.I.B.A.

A New Appointment at Twickenham.—At a recent meeting the Twickenham District Council appointed Mr. P. R. Sillwood Cemetery Superintendent and Gardener at a salary of £190 per annum, rising to a maximum of £230 with emoluments valued at £35. This new appointment becomes an established post for the purposes of superannuation. For the past six years Mr. Sillwood has been assistant superintendent to the Watford Joint Burial Board.

Dresden Horticultural Exhibition.—The Jubilee Exhibition to be held at Dresden, from April to October this year, promises to be of the utmost interest. Planting and preparations of all kinds have been steadily carried on for a year past, and the exhibition grounds have already assumed the aspect of a huge garden. As at Haarlem last year, the period of the exhibition has been divided, and six special shows will take place according to the plants which are expected to be at their best during the time fixed. The first show, at the opening of the exhibition, on the 23rd of April, will be for spring flowers, which will be staged in several of the large exhibition halls. Azaleas and Rhododendrons are expected to be the great features of this show. Throughout the whole period of the exhibition certain halls will contain scientific and technical exhibits of a nature to be interesting and helpful to horticultural visitors. A little later, when the weather is warm, the outside sections of the exhibition—the Roses, herbaceous plants, etc.—are likely to receive the most attention. A display of Tulip and Narcissus novelties from Dutch and German growers, an open-air theatre, and a number of other features will combine to attract many thousands of visitors to the exhibition.

Appointments for the Ensuing Week.—Tuesday, March 16: Winchester Gardeners' Associations' meeting. Wednesday, March 17: Royal Gardeners' Orphan Fund Committee meet. Pangbourne Gardeners' Mutual Improvement Association's meeting and lecture. Friday, March 19: Manchester and North of England Orchid Society's meeting. Saturday, March 20: British Mycological Society's meeting.

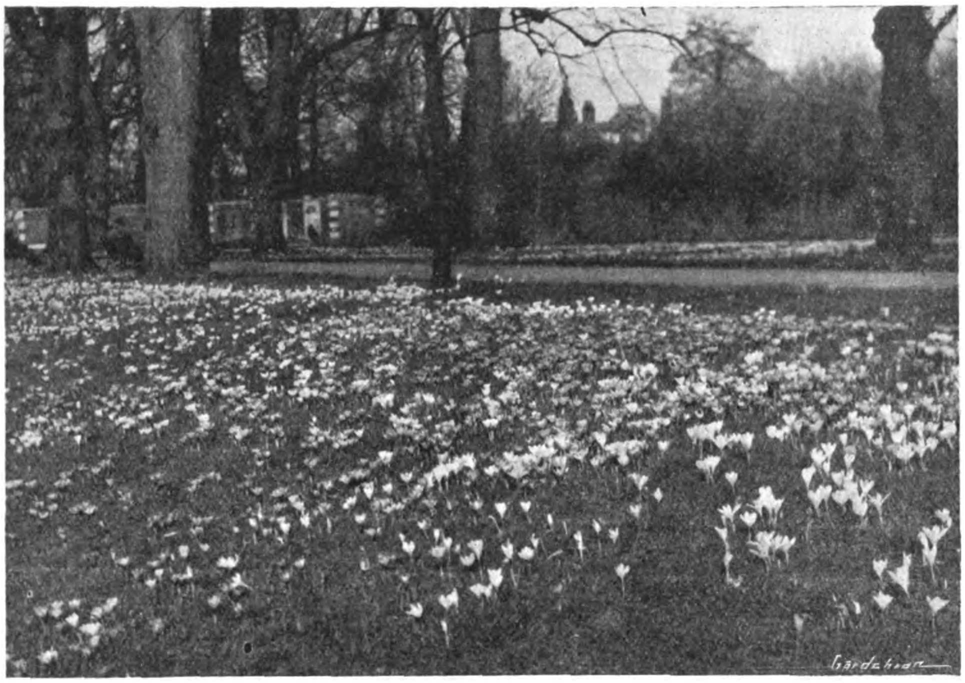

FIG. 89.—CROCUSES NATURALISED AT HAMPTON COURT

"Gardeners' Chronicle" Seventy-five Years Ago.—*Amherstia nobilis and Victoria regia.*—We learn that the beautiful Amherstia nobilis has flowered at Frogmore. The first raceme was taken to Buckingham Palace on the 7th inst., and we anticipate that another will have expanded before this time. In the cultivation of this plant, Mr. Ingram has found it necessary to constantly shade it from the rays of the sun, otherwise the young pendulous leaves are apt to get their edges scorched. It grows luxuriantly in a moist heat of from 65° to 70° Fahr.; it likes a good supply of water, and sometimes a little manure water. We understand that the Victoria Water Lily has been blooming in Messrs. Veitch's nursery, Exeter, for these three weeks past, during which time it has produced nine blooms. To Messrs. Veitch, therefore, belongs the credit of having first flowered this interesting plant in a nursery. It occupies a tank fifteen feet broad, and has seven leaves on it, some of which are reported to have been upwards of four feet in diameter. The water in which it grows is kept in continual motion, by means of the revolutions of a small wheel. Flower buds continue to make their appearance, and in all probability there will be a succession of blooms for some time to come. *Gard. Chron., March* 15, 1851.

The Week's Work.

THE ORCHID HOUSES.

By J. Collier, Gardener to Sir Jeremiah Colman, Bart., Gatton Park, Reigate.

Management of the Houses.—With the advent of March there will be a daily increase of light and sunshine, and each division will require more attention in regard to ventilation and atmospheric moisture. There will be a gradual activity amongst the plants, both as regards development of flower and growth. Owing to the more favourable outside conditions, the temperatures of the houses may range a few degrees higher than hitherto, both night and day.

Shading.—It will now be necessary to have the blinds or other shading material fixed on the houses ready for use, as the sun will increase in power each day. In the coolest division the temperature, under the sun's influence, will rise quickly above what is necessary for the well-being of the plants. The growths and leaves that are now developing are very tender and will soon become scorched and disfigured if they are too freely exposed to bright sunshine. Discretion must be exercised in the use of the blinds. It is advisable to be on the safe side by not unduly exposing the plants to the sun's rays; at the same time, they should not be shaded more than is really necessary.

Ventilating.—Cold winds ofttimes alternate with bursts of bright sunshine in March, the external temperature being perhaps 40° or more below that in the warmer houses. Under these conditions it is not advisable to admit fresh air in sufficient volume to keep down the temperatures. On such occasions use the blinds. When the outside temperature rises to 45°, the amount of ventilation may be increased and shade afforded with discretion. These remarks apply more especially to the cooler houses containing such plants as Odontoglossums, Masdevallias and cool-growing Cypripediums. The Cattleya and intermediate houses will only require shading for an hour or so during the middle of the day until the season is further advanced. Any inmates of these houses that require more shade should be placed at one end and be shaded independently. Many occupants of the East Indian house, such as Phalaenopsis, Angraecums, and the warm-growing Cypripediums will require protection from the sun.

THE KITCHEN GARDEN.

By F. Streeter, late Gardener to Major Albert Pam, Wormley Bury, Broxbourne.

Tomatos.—Where Tomato plants are required for outside planting the seeds should be sown now in well-drained six-inch pots and in a sterilised compost if possible. Raise the seedlings in a temperature of about 50° at night and 60° by day. So soon as the seedlings are large enough pot them singly into sixty-sized pots filled with rather sandy soil. Grow the plants sturdily at all times. They will quickly root in the new soil, and so soon as they are fit transfer them to six-inch pots, using the following compost: two-thirds fibrous loam, one-third old Mushroom-bed manure, and sufficient road grit and sand to render the texture porous. Should the loam be deficient in lime a little of this material should be added. Grow the plants steadily and give them plenty of ventilation when outside conditions are favourable. The first truss should be set by the last week in May, when the plants should be set out in their final quarters if the weather is favourable.

Celery.—The main sowing of Celery should now be made in boxes of fine soil, according to requirements. Treat the seeds with formalin, as recommended by the Board of Agriculture, for combating rust disease, which is increasing yearly. Sow very thinly and raise the seedlings in a moist atmosphere. From the time of seed-sowing to digging the drop, Celery should never be allowed to suffer from want of water at the roots. The earliest sowings are ready for pricking off into other boxes or frames, or, in the case of plants required for exhibition, placed in small sixty-sized pots.

Globe Beet.—Early supplies of Beet may now be easily had by sowing in cold frames over a mild hot-bed of leaves covered with about six inches of fine soil. These young roots are much superior to the old roots of last season's main crop. Admit a little air on the leeward side of the lights early in the mornings and close them about three o'clock, first gently spraying the frame with tepid water.

Brussels Sprouts.—Brussels Sprouts require a long season of growth, and I strongly advise sowing now in boxes and raising the seedlings in gentle warmth. The seeds will germinate very quickly, and the seedlings should be pricked out into other boxes or frames so soon as they are ready. Grow them sturdily at all times.

THE FLOWER GARDEN.

By F. C. Puddle, Gardener to Lord Aberconway, Bodnant, Taly-Cafn, North Wales.

Ivy.—Ivy on screens and walls should now be trimmed. It is not good practice to allow a superabundance of growth to extend from the walls as it has a tendency to make the latter damp, and when cutting takes place an unsightly appearance is inevitable. If annual clipping is practised at this season the plants will be clothed with new growth in a short time.

Galtonia candicans.—Bulbs of this handsome Liliaceous plant may now be planted in a well-drained soil and sunny situation. Plant the bulbs six inches deep and from nine inches to twelve inches apart. Galtonias are quite hardy provided the soil in which they are grown is thoroughly drained. If, however, the position is damp, the bulbs should be lifted in autumn and stored in dry soil for the winter.

Ericaceous Plants for the Rock Garden.—The introduction of many dwarf Rhododendrons and allied genera from China and Tibet, has greatly widened the choice of small shrubs suitable for the rock garden. In a lime-free soil the cultivation of these plants presents no difficulty, but when the soil is calcareous the problems of successful culture assume a more perplexing form. The practice of excavating the soil and filling in with peat, leaf-soil and sand is, at its best, only a temporary measure, for the lime-impregnated water from the surrounding soil, percolating through the bed, soon renders the whole mass unsuited to the plants. A better and more permanent method would be to make the whole bed above ground level. The outline may be formed with peat turves and the centre filled in to an average depth of about one foot six inches, with a mixture consisting of equal parts of leaf-soil and peat, with not less than one-fifth its bulk, of silver sand. The sand is an important ingredient. Sea sand should not be used, as the small particles of shell contained in it would introduce lime and render the whole work of no avail. Undulations, for the purpose of providing shady nooks, may be formed by building ridges faced with stones (avoiding limestone), and filling in with the prepared compost. If suitable stones are not available, moderately sharp ascents may be made with peat turves, and these planted with dwarf-growing Ericas, Vacciniums and Gaultherias, such as G. trichophylla, G. nummularioides and G. Veitchiana, in addition to Rhododendrons. A selection of dwarf Rhododendrons for the more exposed parts of the bed includes the violet-purple R. rupicolum, R. verruculosum and R. nigropunctatum, the slightly paler R. impeditum, and the lavender-blue R. intricatum, R. fastigiatum, with the taller-growing R. hippophaeoides, the yellow R. chryseum, the purplish-mauve R. scintillans and R. parviflorum. For the most sheltered places select R. Sargentianum, a compact-growing plant with small yellow flowers; R. calostrotum (pink), R. dichroanthum (orange), R. haematodes and R. euchroum (both brilliant red); R. Williamsianum (pink), R. campylogynum (deep purple), the tiny, plum-coloured R. myrtilloides, and lastly, the prostrate R. repens, with large, brilliant red flowers. Other plants which may find a congenial home in the bed are Pyrola rotundifolia, Shortias and Linnaea borealis.

Perennial Lobelias.—Varieties and hybrids of Lobelia cardinalis and L. fulgens, which are being wintered in frames, may be divided and the divisions planted separately. The separate portions will make good crowns for planting out at the end of April. These Lobelias delight in a moist position during summer; they will not withstand a severe winter in the open.

HARDY FRUIT GARDEN.

By W. Auton, Gardener to Viscount Elveden, Pyrford Court, Woking, Surrey.

Control of Pests.—In a short time insect life generally will take on a new lease of life, with increased activity, and nothing should be left undone at the present time which will help to frustrate these activities. Trees which are badly infested with American Blight should be gone over individually, in addition to being included in the general spraying. By means of a fairly stiff paint brush, work a paraffin emulsion or methylated spirit well into all knotty and irregular surfaces of the bark to ensure reaching all hibernating insects, and syringe the trees heavily with clear water afterwards. This pest also migrates to the roots of trees in autumn, and when it is known that a tree is affected below ground, small doses of carbon disulphide should be injected into the soil at intervals of about two feet, but keeping at least that distance away from the trunk. The last brood of the Gooseberry caterpillar hibernates in the soil and the pest emerges in early spring to continue its life cycle, hence, where this destructive pest was troublesome last season it is safe to assume that the first few inches of soil will contain numerous crysalids. The destruction of these at the present time will materially facilitate the control of the pest; where practicable, the first few inches of soil should be removed entirely and buried in the bottom of a trench. Fresh soil for making up the ground level may be brought from the vegetable quarter.

Plums on Walls and Fences.—The Plum is much appreciated amongst hardy fruits, and by a judicious selection of varieties it is possible to provide for a supply of delicious fruits for both dessert and culinary purposes over a long period. Rivers' Early ripens in July on a wall, while Coe's Golden Drop will hang until October. Although there is no necessity to afford Plums the protection of walls or fences, it is frequently easy and good practice to do so, for the more variable the sites the longer can the season be extended. Trees on fences or walls have generally more reliability of cropping, and often produce good crops when those in open positions fail. Further, it is much more easy to protect such trees from either birds or inclement weather, should the necessity arise. Fan-trained trees answer the purpose best. Cordon-training may be employed where space does not permit of fan-training, but only on walls of good height where extension of the cordons can be liberally practised, as Plums generally resent the restriction of growth which would be necessary to confine them to the space available on a low wall. The aspect for the several varieties should be chosen with care, selecting the sunniest positions for the finest dessert sorts. A southern aspect accelerates early ripening, and the additional sunshine afforded promotes flavour in the fruits, hence Kirke's, Jefferson, Denniston's Superb and Late Transparent Gage should be given such positions. For an eastern aspect Coe's Golden Drop, Rivers' Early, Victoria, President and all the Gages are suitable. For a western aspect hardy varieties not addicted to skin cracking should be chosen, such as Monarch and Pond's Seedling, while these varieties also succeed on a north wall and are sometimes useful in such positions for giving late crops.

FRUITS UNDER GLASS.

By T. Pateman, Gardener to Sir Charles Nall-Cain, Brocket Hall, Hertfordshire.

Peaches and Nectarines.—Trees of these fruits growing in borders in the early house will now be swelling their crops freely, and the work of disbudding the shoots and thinning the crops will require frequent attention. To what degree this work should be carried out will depend entirely on the vigour of the tree under treatment; young shoots on vigorous trees may be removed with a liberal hand but not to such an extent as would cause a severe check to root-action. On the contrary, weakly trees should be encouraged to make new growths, also trees that have been severely root-pruned. In disbudding, first remove all shoots on the under side and those that are badly placed, preserving all the basal growths which will furnish the fruiting wood for next season. Keep a sharp watch for green or black aphis, and so soon as these pests are detected the trees should be sprayed with an insecticide or fumigated lightly on successive nights, choosing a time following a dry afternoon when the foliage is dry. Examine the borders carefully and if found to be dry they should be moistened freely with tepid water. Do not maintain high temperatures by the excessive use of fire-heat but take every advantage of solar heat. A temperature of 60° at night will suffice with a rise of 10° or more by day. The trees may be sprayed with tepid rain water once daily, in the afternoons, during periods of hot sunshine, but should the weather prove dull damping the bare spaces will be sufficient. No hard and fast rule can be laid down as to when the trees require moisture; only by close observation can this be ascertained, but as a guide trees growing in well-drained borders will need to be watered about every week during hot weather.

Successional Houses.—Trees in successional houses are in various stages of growth and should be treated as advised in various calendars for early Peaches. The trees in the latest house will be in bloom by this date; to retard the crop as late as possible the trees should be treated quite naturally, ventilating the house freely whenever possible and closing the ventilators at a much later hour than that recommended for the mid-season crop. Even when artificial heat is not used in these late houses the crop may be hastened or retarded at will by closing one at 3.30 p.m., and another at 6.30 p.m. Much will depend on the aspect of the house in this respect; presuming the house faces south-east it may be closed much earlier than one facing south-west. It is not advisable to water the borders during the time that the trees are in bloom; this should be done before the flowers open. Ventilate the house freely on every favourable occasion and, to ensure a good crop of fruit, a soft brush or rabbit's tail should be passed over the flowers about mid-day when the pollen is dry. Trees in late houses that are ventilated freely should never be allowed to lack moisture at the roots. The soil dries more quickly than in houses that are closed earlier with an atmosphere charged with plenty of moisture.

PLANTS UNDER GLASS.

By John Coutts, Assistant Curator, Royal Botanic Gardens, Kew.

Begonia Evansiana (syn. discolor).—This old Begonia (Fig. 90), which is nearly hardy, should be more generally grown for greenhouse decoration, as it is very useful towards the end of summer. Plants that have stored during the winter in a semi-dry conditions should now be starting into growth. The roots should be shaken free of the old soil and the plants placed in forty-eight-sized pots. Later, they should be shifted into six-inch or seven-inch pots. This Begonia thrives in any good potting compost, and only requires cool greenhouse treatment during all stages of its cultivation. A ready means of increase is afforded by the buds that form on the old inflorescences.

Begonia gracilis.—This Begonia which is more generally known in gardens as Begonia Martiana, may also be propagated from buds. This is a beautiful greenhouse species which should be more generally grown, and must not be confused with the B. gracilis of many continental firms, which apply the name to a section of B. semperflorens. Begonia gracilis is best started in a warm house, afterwards accustoming it to cooler conditions.

Begonia weltoniensis, B. Dregii and B. Sutherlandii.—These are all useful for greenhouse decoration. B. Sutherlandii is a summer flowering species, while B. weltoniensis and B. Dregii may be used for summer or winter flowering; old plants shaken out and re-potted at this time will flower during the late summer and autumn. Young plants raised now may be flowered during the late autumn and winter. These three Begonias are all easily grown in an ordinary greenhouse temperature.

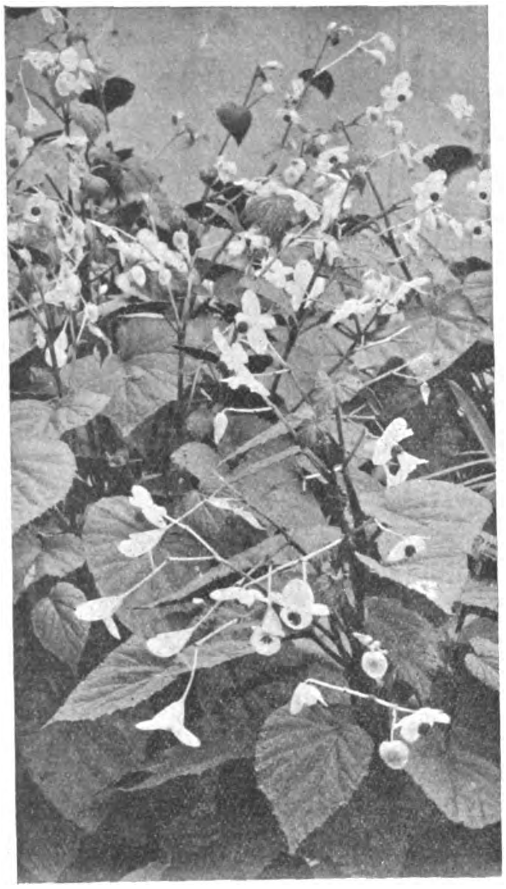

FIG. 90.—BEGONIA EVANSIANA.

Other Begonias.—Begonia President Carnot is a very fine subject for the intermediate house and is seen at its best when planted out on a raised bed of rich soil, training the shoots to wires under the roof-glass. B. Luzerna somewhat resembles B. President Carnot, but is a much stronger grower, and succeeds perfectly in the greenhouse or conservatory, making large specimens when grown on in large pots. When planted out this Begonia is an excellent subject for covering pillars. B. coccinea, when planted out, is also excellent for the same purpose, or for training to the roof-rafters. Other Begonias that are useful for the greenhouse are B. echinosepala, B. Ingramii, B. acuminata, B. fuchsioides, B. Haageana and B. glaucophylla, which makes a beautiful basket plant.

Campanula pyramidalis.—Plants raised from seeds sown last year should now be ready for placing in their flowering pots. At this date they may be stood out-of-doors at the foot of a warm wall; later, they should be plunged in a bed of ashes in an open position. Seeds should be sown now to raise plants for next year.

Capsicum annuum.—There are many fine varieties of this Solanum all of which are useful for furnishing the greenhouse during the autumn. Seed should be sown during March, in a temperature of 50° to 60°. The young plants should be potted on until they are in their fruiting pots, which should be six inches in diameter. As the season advances the plants should be accustomed to greenhouse conditions. Capsicums require good cultivation and liberal feeding during the growing season; they are very subject to attacks of Begonia mite and red spider, which must be guarded against.

FOR NORTHERN GARDENERS.

By A. T. Harrison, Gardener to the Marquis of Ailsa, Culzean Castle, Maybole, Ayrshire.

Rock Garden.—Some of the early spring flowers are making a show, and amongst these our native Saxifraga oppositifolia and its varieties are amongst the foremost; these dwarf, creeping plants are well adapted for covering the stones with a dense mat of growths, which in early spring is covered with the numerous rosy-purple and other coloured flowers. They may be increased by division soon after they have passed out of flower. Primula denticulata and its variety, P. d. alba, is always one of the first of the hardy Primulas to show colour, and where its umbels of lilac-coloured flowers are appreciated it makes a very effective group, either in the rock garden or in front of the herbaceous border. This plant may also be increased by division, as well as raised from seed.

Herbaceous Borders.—Hardy herbaceous plants are developing young growths, and if any rearranging or replanting is necessary it should be undertaken at once; the borders should first be well-manured and dug deeply so as to provide a deep root-run for the plants, for many of our hardy plants are vigorous growers, and it is only when the soil is in good condition that they produce the best results. A general renovation and replanting are not to be recommended unless the borders are in a very bad state, but a certain amount of lifting and replanting, if done systematically each year, helps to keep the borders well-furnished with healthy, vigorous specimens. Michaelmas Daisies may be quoted as an example; anyone who has observed the difference between the flowers of plants that are broken up and replanted every second or third year, and those that have been left to become crowded and exhausted will agree that there is no comparison between them. On the contrary there are many plants, such as Paeonies and Delphiniums which are best left undisturbed for a number of years to get the best results; the growths of these should be carefully thinned early in the season leaving only sufficient to form good plants without overcrowding.

Half-Hardy Annuals.—Seeds of hardy annuals should be sown now in boxes of sandy loam, covering the seeds lightly and germinating them in a moderate temperature. So soon as the seedlings are large enough to be handled they should be pricked out, either into other boxes, or better still, into cold frames in which they may be grown slowly to make good plants for bedding out later. Half-hardy annuals provide a useful range of easily-raised plants from which effective beds, as well as much useful material for cut flowers, may be annually produced, and include such general favourites as Asters (both double and single kinds), Stocks, Larkspurs, Clarkias, Cosmeas, Alonsoas and Phlox Drummondii.

Begonia Gloire de Lorraine—Plants of this Begonia and varieties of the winter-flowering type, which have been flowering since October, should now be given a rest by reducing the supply of water at the roots. Do not dry them off but keep them on the dry side for a few weeks, removing the spent flowers and foliage. When re-introduced to heat and moisture they will develop quantities of strong side shoots, which may be used as cuttings to raise a fresh batch for next winter's flowering.

TREES AND SHRUBS.

OLEARIA SEMI-DENTATA.

In his "Notes from a Welsh Garden," p. 134, Mr. A. T. Johnson reports the loss of this fine shrub by frost, and it would be of great interest to other growers if he would state what amount of frost was registered in his locality during early December, as our plants have come through the winter unharmed, including some young specimens rooted from cuttings two or three years ago and growing in an exposed situation, where 12° of frost was registered.

This is such an exceptionally fine shrub that one could only part with it if compelled to do so; moreover, it is one of the easiest of the whole family to increase from cuttings, that even where it is damaged occasionally, it would be advisable to insert a few cuttings every autumn, which, if not required for home use, would make a charming gift to an appreciative friend. In such a manner I first became acquainted with Olearia semi-dentata, and if Mr. Johnson cares to accept a young plant I will be delighted to send him one so that he may make a fresh start.

I was extremely interested to hear the story of the introduction of this shrub. The discoverer, after many days coasting round the South Island of New Zealand, and much climbing and wandering inland, secured plants and carried them to the coasting steamer. At the port of departure for this country an examination of the treasures was made, when it was discovered that only one plant had survived the ordeal by steam which had penetrated through a knot-hole in the box in which they were being conveyed home. That single specimen eventually reached this country and is probably the parent of all those now existing here, as I have not learned of the species having been reintroduced.

CORYLOPSIS SPICATA.

The great charm of this shrub is not revealed every season, but when it flowers freely during February it is a very charming plant.

The flowers are pale creamy yellow and produced in drooping clusters on the leafless branches; they are sweetly scented, and, if the flowering sprays are cut early, last fresh for a considerable time in water.

The plant was introduced from Japan to this country in 1864, and is almost as hardy as the common Hazel, to which it is closely allied, its time of flowering also synchronising with, but being distinctly superior to, the meagre catkins of our native Hazel, the petals measuring nearly half-an-inch across.

Three years since a plant of Corylopsis spicata here was specially well flowered; it measured about three feet high and about four feet through and seemed to be in perfect health, but on visiting it the next season I found it completely dead. Not a sign of the cause was to be seen, and I could only conclude that its extreme floriferousness the previous season resulted in its death. *A. T. H.*

HYPERICUM AUREUM.

This is a remarkably attractive little bush which in view of its distinctiveness and beauty might be more often planted in gardens. It does not seem to exceed about four feet in height, and it makes a shapely, twiggy shrub, often with only a single stem.

The oblong leaves, one inch to two inches in length, are a bluish green and deciduous. The flowers appear in clusters at the end of the shoots. The individual blooms, each one-and-a-half inch across, are a rich yellow, of extraordinarily heavy texture, and their centres are almost filled by the unusually large cluster of stamens.

This Hypericum is quite hardy and grows well in any free, gritty soil, in full sun or part shade. Though discovered so long ago as 1776, it is of comparatively recent introduction to this country. Many authorities, including Mr. W. J. Bean, consider it the most beautiful of all the American Hypericums. *J.*

HARDY FLOWER BORDER.

A NEW WHITE FORM OF GERANIUM ROBERTIANUM.

Some years ago the late Mr. E. C. Buxton gave me a few plants of a small, pure white Geranium which, though it is said to be a form of G. Robertianum, is quite unlike the older white variety of the latter. In fact, whereas G. Robertianum alba is such a strong grower as to be undesirable in the garden, the plant referred to has no such troublesome defect. It is very much smaller in all its parts than the more familiar plant, and its whole growth is so delicate and refined that it might easily be mistaken for a different species.

This Geranium was grown in Mr. Buxton's garden for some twenty years, and I have had it under observation for at least half that period; although it seeds freely there is no evidence of it ever having crossed with the wild red plant which abounds here. It is entirely a fresh, pale grassy-green in leaf and stem; the corolla is dead white, and not a trace of the bronze or red often seen in the common white form of the type ever occurs, not even in the fading foliage or flower.

Another feature which to my mind is very distinct, is the way in which the leaves of young, unflowered plants lie closely pressed, and spread out cart-wheel fashion on the soil. Again, I have frequently noticed the leaves of this Geranium injured by frost to which those of the Herb Robert seem entirely immune.

Mr. E. C. Buxton obtained his plants from Sir Charles Isham, who had a garden of curiosities at Menai Bridge. As most of his collection of plants came from western Ireland it is probable that this little Geranium also had its origin there. At any rate, there is not much doubt but that the whole stock of the plant now in existence in Britain came from that old garden at Menai Bridge. *A. T. Johnson.*

CIMICIFUGA.

The few species of Cimicifuga which are in cultivation are very easily accommodated in the herbaceous or mixed border, and may be recommended for their distinct appearance and graceful habit of growth. The generic name is derived from *cimex*, a bug, and *fugo* to drive away; indicating certain virtues which some species are supposed to possess.

The herbaceous perennials are allied to Actaea, and are of very easy culture in any ordinary good garden soil; a situation in half-shade is preferable, and they need a moist soil. All are easily propagated by division of the roots or by seeds.

C. racemosa is a well-known species; the flowers are white, and produced in long, compound racemes, during July and August. The leaves are triternate with serrated leaflets. This graceful plant, which grows to a height of from three to four feet, was introduced from North America so long ago as 1732. C. japonica has white, sessile flowers in very long spikes; the leaves are large, ternate, with lobed cordate segments. The plant grows about three feet high. It is a Japanese species and was introduced into this country in 1879. C. elata, with white or whitish flowers in pyramidal racemes produced in June and July, grows about two feet high. The ternate or sometimes biternate leaves are deeply serrated. This foetid plant is a native of Siberia and North America, and was introduced in 1777.

C. americana and C. cordifolia are not well-known plants; the former produces panicles of white flowers in August and September, is rather dwarf, ranging from two to three feet, and was introduced from Carolina in 1824. The latter species, similar in height but with cordate leaves, is a North American plant, and was introduced in 1812.

The Cimicifugas should be more freely used in the mixed border; they associate well with other subjects and possess a charm of their own. They are not obtrusive and thrive with the minimum of attention. *Ralph E. Arnold.*

NOTES FROM GLASNEVIN.

Since the advent of February many species of Crocus have come into flower, adding much to the interest of the garden at this early season. For sheer brilliance of colour, foremost place must be given to C. aureus, of which several groups about the rock garden are much admired for their deep golden colour. C. chrysanthus is another charming yellow species which has been flowering for some weeks; this species varies somewhat from golden yellow to paler shades and is the one from which Mr. E. A. Bowles has raised numerous seedlings. Three, or perhaps four other species, at least superficially resembling each other, are C. corsicus, C. etruscus, C. Imperati and C. versicolor. All have flowers of a lilac shade internally, the outer segments flushed with buff and showing more or less dark feathering. Mr. Bowles points out that C. versicolor shows feathering on the inner segments unlike any other spring-flowering Crocus, and his excellent *Handbook* may be consulted with much advantage by those who find it necessary to master the specific characters as revealed by the corm-tunic and spathes.

C. Imperati has proved a great success in short grass and seems to be increasing. C. Imperati albidus is equally easy to cultivate and is very beautiful. A form grown here as C. versicolor albus is indistinguishable from the white variety of Imperati. C. biflorus is one of the earliest and best, showing remarkably wide variations in colour. That which has been grown here as the type has white flowers feathered with purple on the outer segments, but I cannot distinguish between it and the two varieties known respectively as argenteus and pusillus. In C. biflorus Alexandrae, however, the broad band of dark blue or purple on the outer segments at once distinguishes this variety, which has also rather larger flowers than the type. C. biflorus var. Weldeni has flowers of similar size and shape, but pure white, except for a faint shade of purple at the base; the latter is a beautiful Crocus and worthy of being more frequently grown in gardens. Another pretty variety—C. aerius var. Celeste—which came from Daisy Hill Nursery, Newry, Mr. Bowles suspects of hybrid origin; it is pale lilac in colour but less vigorous than C. biflorus and its forms.

Crocus Susianus, a very old denizen of our gardens, still remains one of the most beautiful. The flowers are not so large as those of some other species, but the golden yellow colour of the segments internally, with the three purple stripes externally on the outer segments render it attractive whether the flowers be closed or fully expanded to the sun. C. Sieberi is a robust and satisfactory species producing flowers of pale lilac with bright orange stigmas. It increases fairly freely and may be relied on to appear annually without fail. It is said to vary from seeds but no varieties have yet appeared here. One of the earliest to flower and still in bloom is C. Fleischeri, a distinct species, the flowers with narrow white segments, the outer three striped with purple. Another lovely yellow Crocus now in flower is C. candidus var. Mountainii, and it is the only form of candidus at present in this collection. It is reputed to vary according to locality, as is not uncommon with other plants, but Mr. Mountain's variety with its deep orange flowers is a real acquisition. C. Olivieri is another desirable species, the flowers orange like the last but of a rather brighter shade. C. veluchensis has deep purple flowers and is somewhat slow to increase. The original corms of our stock were collected by the late Mr. C. F. Ball, in Bulgaria, and I take it to be the same form as that alluded to by Mr. Bowles as having been collected by The O'Mahony on Mount Rilo, Bulgaria. What seems to be the same species was received here as C. Tauri, but as this name is a synonym of C. reticulatus, which has differently shaped flowers of a generally lighter colour, it would seem that we do not possess the true species. The last species I will mention is C. Tommasinianus, and, if not the most brilliant, it can claim to be the most accommodating. In the rock garden it has spread far and wide, coming up at the side of the hardest walk and seeding into everything. However, it seems to harm nothing, and on a sunny February day makes a brave show with its starry flowers of lavender colour; the exterior of the segments is dull buff so that the flowers are most to be admired when fully open. There are numerous varieties, the most distinct here being atropurpureus.

Helleborus corsicus is a vigorous species which will grow in the most unpromising places though reaching its maximum development in good soil. The flowers, produced in panicles on long stems, are pale green and stand out most conspicuously in a shady position, for which the plant is most useful, more especially at this season. During summer the large leaves are freely produced and make an excellent ground cover among shrubs and under trees in woodland places where it might well be associated with H. foetidus.

Hyacinthus azureus from Asia Minor, figured in the *Botanical Magazine*, t. 6822, is one of the most charming of spring bulbs for the rock garden. Planted in groups here and there, especially under dwarf shrubs, its lovely spikes of azure blue are always admired. It is inclined to spread, and may occasionally crop up where not wanted, but is easily dealt with.

Iris reticulata, with its charming flowers of deep violet and gold, must always remain one of the choicest flowers of early spring. Whether in the rock garden or in narrow borders around the greenhouses it is equally happy and floriferous. Visitors occasionally enquire as to whether the clumps are ever lifted, but none of them has ever been moved since being planted; most of them have been down ten, fifteen and twenty years, and one of them ever since Sir F. W. Moore was appointed (1879); nor does position make any difference as they are just as good in the sun as shade, and in heavy damp soil as in a drier medium. Iris sindja-Reichi, a Juno Iris, and presumably a hybrid of I. sindjarensis, has been blooming for some weeks, and is still in good flower. The flowers are bright blue and held just above the grey-green, arching leaves. This Iris seems to need a good, deep soil and a sunny position, as the bulbs purchased from Messrs. Van Tubergen some years ago have increased and are now stronger than when planted. I. sindpers, of the same section, and also a hybrid with sindjarensis as one parent and persica as the other, is to be recommended for similar conditions. In this case the flowers are a shade darker but equally beautiful. The Juno Irises generally seem to like a stiff loam, a sunny position, and to be left alone. When showing signs of weakening they should be lifted very carefully in July when the leaves have ripened off and replanted at once in fresh soil, to which, especially in ground free from lime, a liberal addition of old mortar rubble should be made.

Narcissus minimus is one of the gems of the rock garden in early spring, and no flower is more earnestly looked for so soon as the year is a few weeks old. It has been in flower here since early February and rejoices in a deep but stony soil in a sunny position where it becomes thoroughly ripened in summer. N. minor, also in flower now, is, of course, larger, but equally suitable for the rock garden where the coarser garden forms are out of place. Being of stronger growth, a somewhat heavier soil suits it better.

Omphalodes verna has the delightful blue flowers of the Borage family and is now very attractive. The flowers are most freely produced in a somewhat dry position, where they are not so apt to be hidden by the leaves. Belonging to the same family, Pulmonaria augustifolia azurea is flowering freely in moister places, and especially in the bog garden.

Already the vast family of Primula has entered on its season of flowering. P. Palinuri, with large fleshy leaves and small but rich yellow flowers, has been in bloom for some time, and P. marginata is showing colour strongly. The most conspicuous group at present, however, is P. Jewel, a Juliae hybrid and the best of several. There are two forms of P. Juliae, one with small, roundish leaves and deep rosy-purple flowers, the other with larger leaves and pale, washy flowers, and I fear some of the hybrids have the latter as one parent.

Saxifrages in flower have been increasing in number since early in January. The Megasea section is best represented at the moment by S. crassifolia, a most useful plant, flourishing in any position, and flowering most freely in the poorest soil. A group planted at the base of the rockwork, right against the path, is covered with spikes of pale pink flowers, and the position is practically sunless. Other species and varieties which have been flowering for some time are S. Burseriana Emperor, S. speciosa and S. tridentina, and the hybrids S. Bursiculata, S. Faldonside and S. Paulinae. S. caucasica Desoulavyi is in full flower and is one of the best yellow Saxifragas blooming now.

Scilla sibirica and S. bifolia are in full flower and are too well-known to require further mention, but S. bifolia rosea is worthy of note for it makes a good group in the rock garden if suitably associated and kept well away from the blue form. In spite of the varietal name, the colour is not all that could be desired.

Tulips will shortly contribute to the spring display, and already Tulipa turkestanica is in flower, and although the green and white-striped flowers have no great claim to beauty, yet odd clumps about the rock garden are not without interest at this early season. T. Kaufmanniana will certainly be in full bloom ere these notes are in print.

Shrubs in flower are becoming more numerous every week. Daphne hybrida, more commonly known as D. Dauphinii, has been in flower all the winter and is quite unaffected by the hardest weather. It is an evergreen with shining, dark green leaves among which are produced the clusters of reddish purple, sweetly-scented flowers. I believe it prefers at least half shade and certainly likes a cool soil. D. hybrida is an old plant, and is figured in the *Botanical Register*, t. 1177.

Forsythias are now coming into full beauty

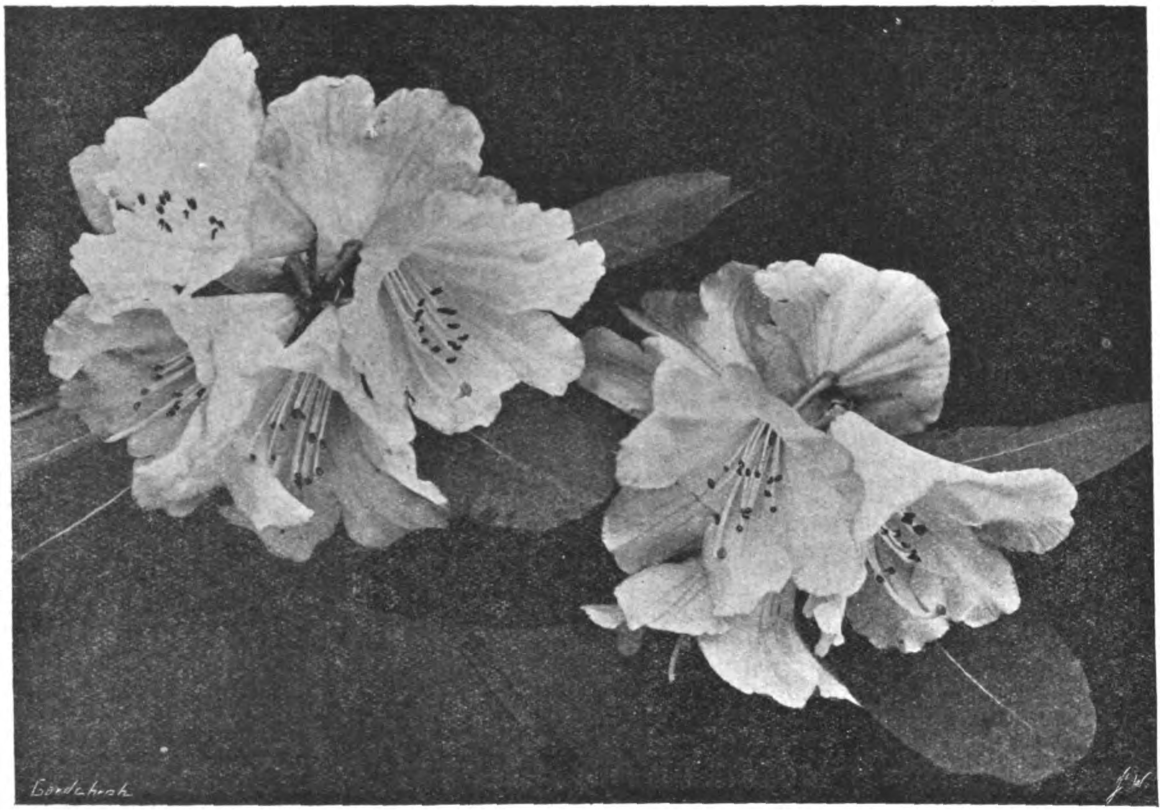

FIG. 91.—RHODODENDRON OREODOXA.
(see p. 190).

and notable among them is the little-known Forsythia ovata, native of China. Compared with the better known species and varieties the flowers are small but just as freely produced. They are clear yellow, and so far as one can judge from a young plant, the habit is more compact than that of other species. Rhododendrons continue to come into bloom, and R. praecox is at present in full glory, having succeeded R. dauricum, R. moupinense, R. parvifolium and R. Nobleanum, now over. R. Fargesii and R. oreodoxa (Fig. 91) are both in flower, and other species are promising well should the weather conditions prove favourable. *J. W. Besant, Glasnevin.*

NOTES FROM A WELSH GARDEN.

SINCE my last notes appeared in these columns the mild weather therein referred to has been maintained with the inevitable result—unseasonable, premature growth and blossoming on all sides, many subjects being fully a month before their usual date. Prunus cerasifera var. Pissardii, for example, was covered with bloom by the middle of February, Forsythia intermedia and F. suspensa, both quite in the open, were only a few days later. Osmanthus Delavayi, always so charming, opened its clusters of very fragrant, wax-white, tubular flowers at the same time, and we have experienced (perhaps to be regretted) Erica mediterranea in its several varieties in full flower at the same time as E. lusitanica (codonodes), E. carnea and other winter-flowering species.

The earlier Rhododendrons have, of course, had an exceptionally favourable time, and it looks as though R. ciliatum now (end of February) breaking bud, will be equally fortunate. R. oleifolium, presumably a form of R. racemosum, is in full bloom, and a very attractive little shrub it is. In the open woodland where these are growing, Grevillea rosmarinifolia is well-furnished with its hanging, crimson clusters; G. sulphurea is tufted with its curious cockades of old gold, and Azara microphylla is again proclaiming itself well worth growing for the delicious fragrance which its tiny flowers impart during these early days. But, in addition to this refreshing perfume, A. microphylla can always hold its own as an evergreen shrub, its leafage and habit being particularly delightful.

Familiar as they may be there is a great charm about the lesser Periwinkle (Vinca minor) at this season, especially when growing naturally under woodland trees. Of the many forms now in bloom, V. minor Bowle's variety, is noteworthy, its blossoms being unusually large and of a soft lavender-blue. A colony of selected plants gathered in the woods near Lugano also contains some very attractive forms. In some of these the widely-starred flowers of a rich, deep violet, with the segments very sharply-pointed, are singularly pretty, and, I think, uncommon.

Growing near the last-mentioned, and in striking contrast to them in colour is a group of Pulmonaria rubra, quite one of the best and most distinctive of its race, and a plant that can claim a place among the choicest of early flowers. The pale green, downy leaves, faintly spotted with a lighter shade, of this species afford an admirable setting for the bright, coral-scarlet blossoms. These have no blue or purple in them, they rise to nine to ten inches, and some of the blooms are nearly three-quarters-of-an-inch across.

The Erythroniums are, for the most part, already in bloom, and some colonies of the E. Dens-canis class, with flowers of various shades of bluish-purple and mauve, are extremely effective among the woodland Daffodils and Primroses. Perhaps the choicest of these Dog's-tooth Violets is E. grandiflorum robustum, of which the leaves are a bright, glossy, unspotted green, and the lovely flowers, on stalks nine inches high, are a full-toned butter-yellow. But the whole of these Erythroniums are irresistibly fascinating and dainty and never so much so as when growing among natural herbage.

One of the most beautiful objects in the rock garden is the little Japanese Cherry, Prunus incisa (Mame-sakura), which is said to grow on the slopes of Fujiyama. My specimen of this pigmy Cherry is about three feet high, the branches are slightly arching and wreathed from end to end with copious clusters of its pretty blossoms which are pink in the earlier stages changing to blush-white. Though quite hardy and adaptable and second to none among early-flowering rock garden shrubs, this delightful species is not often seen in gardens. This year, the plant is several weeks earlier than its usual date, and this must also be said of P. yedoensis (Yoshino-Zakura) which is already showing the colour of its rosy-tinted flowers. The latter is the popular street Cherry of Tokio, a tree of singular beauty and form.

Erodium pelargoniiflorum is always a cheerful plant on a sunny ledge of poor soil in the rock garden at this season, the first of its race to bloom, and the last to yield to autumn. It is, moreover, a most adaptable plant, doing well almost anywhere, quite hardy and producing just as many self-sown seedlings as may be useful without being troublesome.

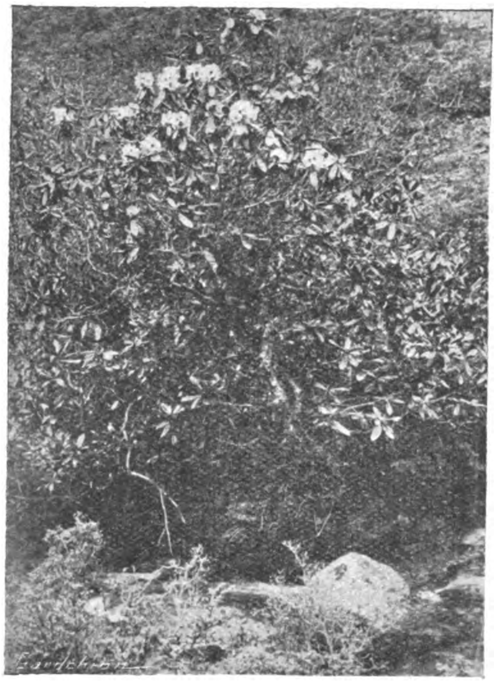

FIG. 92. 'LACTEUM' RHODODENDRON. (K.W. 5759.)

Æthionema iberideum is likewise the forerunner of its kind here, its glaucous leafage being sheeted with white flowers which smell of new-mown hay, even in a normal season, before most rock plants are awake. Anemone blanda, was rivalling the Hepaticas by the middle of February, and about the same time, appeared the lovely blues of Scilla bifolia and S. sibirica taurica, Chionodoxa Luciliae var. sardensis and C. Boissieri, this last rivalling the better-known C. Luciliae in the brightness of its colour and the clear white eye.

Sisyrinchium grandiflorum, whose large, twin bells are of the glossiest, most sumptuous purple-violet, has had a worthy companion in the snow-white variety throughout the latter days of the past month, and few plants are more strikingly dainty and refined. Primula marginata was also in full flower at the same period, and will continue for some time to come to adorn its rocky niche with its chaste lavender blossoms and beautiful foliage. Many of the old double Primroses are also coming into their best just now—mauves, purples, a yellow and a white—and these old time favourites never fail to appeal. Once we tried to grow them along our woodland walks where the native Primroses do so well, but there they were a total failure. Now, in what is more akin to an average kitchen garden soil, they are prospering abundantly.

A bold patch of colour in the rock garden is afforded by Erica carnea var. Vivellii, a rather dwarf-growing form with flowers of a very rich carmine-crimson and bronzy foliage. Another little shrub, always the earliest of its genus to flower, is Helianthemum umbellatum, whose dark green, Rosemary-like foliage makes such a telling setting for the little pure white flowers. These latter are distinctly cup-shaped, they have a slight trace of yellow at the base of the petals, and are produced in the greatest profusion practically throughout the season. This cheerful and comely shrub is still often listed as H. rosmarinifolium, a synonymous name with H. Libanotis, which has yellow flowers.

The Cardamines (syn. Dentarias) are plants one does not often see, but some of them are distinctly handsome. At the time of writing C. pratensis (syn. D. digitata) with its deeply-cut foliage and large rosy-lavender blossoms, borne on ten-inch stems, is very attractive in a cool, partly shaded woodland bed, but it has flowered this year much earlier than usual. This species is a native of mid-Europe and a very old plant in our gardens, having been introduced so far back as 1656. *A. T. Johnson, Ro Wen, Tal-y-Cafn, North Wales.*

MR. F. KINGDON WARD'S EIGHTH EXPEDITION IN ASIA.*

XXVII.—THE PICK OF THE SHRUBS.

IT is often difficult, even impossible, to assess the garden value of a plant on the spot. One is so close up to it, both in time and space, that one cannot see it in perspective, and there are many drawbacks in the conditions—weather, surroundings, company, and so on, which militate against a sound judgment. But at this distance and after the lapse of a year, one can look back on the discoveries and get a much better idea of their order of merit. I have, therefore, thought that it would be useful to add a postscript, giving the names of those plants which, in my opinion, will be the most valuable additions to our gardens, taking everything into consideration, and particularly whether the newcomer is likely to prove hardy or not.

It will be convenient to deal first with the shrubs, and Rhododendrons being the most prolific genus, I have selected the most outstanding dozen.

K.W. 5659, the pink 'Barbatum,' is in my experience unique for the colouring of its large flowers—pale rose-pink and ivory-white in broad bands—and for its loose, lolling trusses of three or four open bells. I would rank it very high, but for the fact that being a medium-sized tree, it will not flower until it is ten or twelve years old. With it I couple the somewhat similar 'Ivory Rhododendron,' K.W. 6215.

The 'Mahogany Triflorum,' K.W. 5687, though possibly only a variety of R. triflorum itself, is at its best a fine thing. Its considerable range of colouring, its tremendous hardiness, and its indifference to soil and situation, are greatly in its favour, and it is a glutton for flower.

K.W. 5732, the pink 'Thomsonii,' looks a good plant; but better still is 'Coals-of-Fire,' or the scarlet 'Thomsoni,' K.W. 5830. This last is, I believe, destined to rank as a plant for all time, and may take an honourable position at the feet of that incomparable species, R. Thomsonii.

Next, of the smaller plants, the snow-white 'Anthropogon,' K.W. 5733, is the best of its class, the obsidian green leaves, dark chocolate felt and clots of snow-white flowers, borne in unusual profusion, being valuable points; the habit, too, is unusually neat and compact. The 'Strawberry Saluenense,' K.W. 5734, another free-flowerer, is unique in colour, and being aromatic leafed, and of neat, tufted habit, will undoubtedly attract attention, especially for its anomalous foliage.

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* The previous articles by Mr. Kingdon Ward were published in our issues of April 12, May 17, June 21, August 3, August 30, September 27, November 1, 1924; April 4, May 9, June 6, June 20, July 4, July 18, August 4, August 15, September 5, September 19, October 19, October 24, November 21, December 5, December 19, 1925; January 2, January 16, February 13, and February 27, 1926.

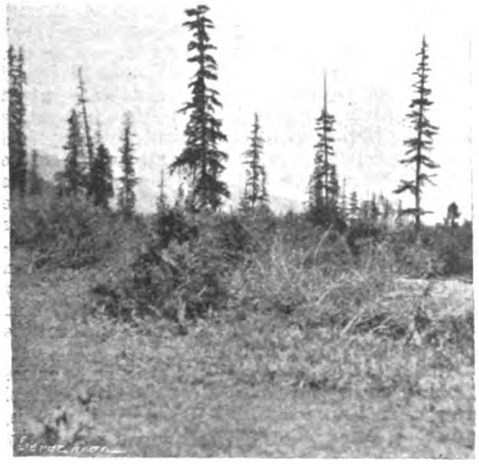

FIG. 93.—OPEN ALPINE VALLEY WITH GIANT JUNIPERS.

Home of Primula microdonta, P. Florindae, P. tibetica, etc.

Another surprising dwarf is 'Plum Glaucum,' K.W. 5843, something between a 'Campylogynum,' and a 'Brachyanthum,' remarkable for the colour of its flowers, which are almost Cherry-red. K.W. 5856 is another generous bloomer and as it may flower either in June or in October, or possibly both, it ought to be popular. Again, the flowers are of an unusual shade of pale pinkish-purple, not often seen on a dwarf. With this species I would place also K.W. 5876, another purple-flowered plant. Neither of these fit into the scheme of things, any more than does the 'Strawberry Saluenense,' with its gland-dotted leaves.

Then there is the 'Banana Trichocladum,' K.W. 5851, which cannot be omitted from the list of prize winners; it has bright flowers and many of them, while another yellow-flowered species, K.W. 5853, or 'Yellow Peril,' if not in the first flight, comes very close up by reason of its magnificent verdigris-coloured leaves, which show up brilliantly against the snow, having an almost metallic lustre. The same may be stated of 'Orange Bill,' K.W. 5874, which, in any case, ranks as high as any on account of its fine, deep, orange flower bells.

But already I have exceeded my dozen first choices, and still I have not mentioned the scarlet 'Neriiflorums,' though they are undoubtedly amongst the elite. My favourite is 'Carmelita, K.W. 5847, by reason of the large size, and brilliant hue of its flowers; but I will not deny that 'Scarlet Runner,' K.W 5845, which I saw first, more completely took my breath away. The third of the trilogy, 'Scarlet Pimpernel' has flowers of an extraordinary dark red—they are not really scarlet at all—but more the colour of dried blood. It is worth noting that of the three 'Scarlet Runner' will stand a much greater degree of cold than the other two—or does so, at any rate.

Then there is the rosy-purple 'Triflorum' ('Oreotrephes'), K.W. 5790, a cumulus of blossom hard to beat, and the beautiful, scented 'Virgatum,' K.W. 6279, with uncommonly large flowers for so small a plant; a real gem.

But I must stop. The tale of Rhododendrons which I consider absolutely first-class, perfectly hardy, and sufficiently distinct to merit the careful attention of growers has already swelled from the original dozen to which I had intended to confine myself, to half as many again, and the list might still be extended.

The genus Lonicera furnished a dozen species, of which three or four struck me as being of exceptional merit, either in flower, fruit, or foliage; sometimes, I think, in two of those attributes, but never perhaps in all three. K.W. 5822, L. Webbiana, is a small forest tree of tidy habit, growing perhaps fifteen or twenty feet high. The leaves are large and dark glossy green, but the small, dull red flowers are rather inconspicuous. Not so the Cherry-like fruits which dangle at the ends of pedicels a couple of inches long. If the birds will let it alone this ought to prove a useful, hardy, ornamental tree.

K.W. 5872 is perhaps the pick of the dozen; a somewhat untidy, straggling bush as we saw it, but no doubt capable of being decently brought up; for it must be remembered that we never saw bushes pruned in Tibet. The flowers are deep purple, not very large, but conspicuous for their unusual colour, which, seen against the young sage-green foliage and violet twigs, is startling enough. In fruit, this deciduous species is almost more notable by reason of its large plum-coloured berries, like Sloes. The plant grows in very harsh, rocky soil, and will drink as much water as it can get. Very different is K.W. 5776, which forms a neat bush, crowded with sulphur-yellow flowers enveloped in paper bracts that form a sort of skirt. The leaves are hairy and the Gooseberry-shaped fruits are bright reddish orange. I regard this species as quite in the first rank, not only of Loniceras, but of shrubs; it ought to be perfectly hardy, coming from a good all-round altitude, about 11,000 feet.

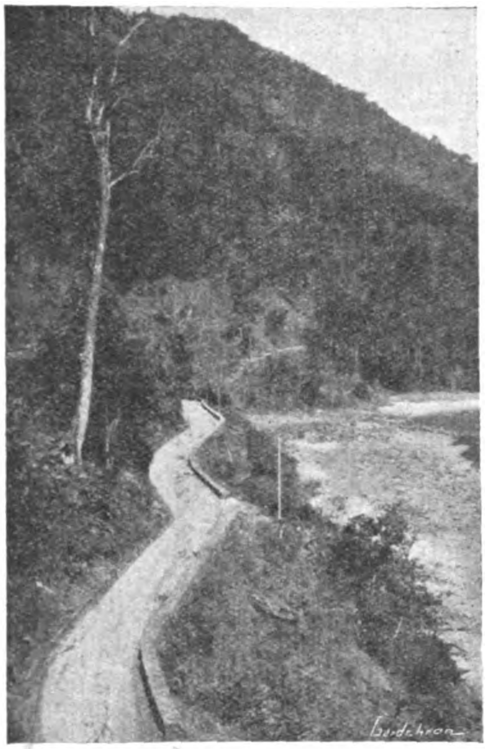

FIG. 94.—THE HIGH ROAD TO INDIA: COMING DOWN TO THE PLAINS.

Finally, there is an alpine species, K.W. 5988, similar to the last in flower, foliage and fruit, but of quite different habit; for it grows prostrate on the screes, at a sufficiently low elevation (about 14,000 feet) to have good prospects of being hardy with us. Both these are of the 'hispida' type.

Of the remaining shrubs, I doubt whether any of our Barberries, Cotoneasters, or Viburnums, of which we have such a monstrous assortment in this country, are worth bragging about. I collected a few, without feeling that the world would be the poorer if I refrained. The dwarf Barberry, K.W. 6326, was a jolly little fellow in fruit, but I did not see it in flower. K.W. 5773 is a Barberry with handsome foliage, well set-off by the black stems, and particularly attractive in its autumn suiting; and K.W. 5962 bears such a spate of blossom that it rains gold for days and days, though the crop of blue-black berries is disappointing. But there—I am ashamed to write about Barberries; it would be almost impossible to find a distinct novelty unless it had ceased to look like a Barberry at all. The same may be written of Cotoneasters—of which K.W. 6400 was, at any rate a vivid sight in fruit—Buddleias, Deutzias, Viburnums and other stock genera.

I found three Roses, the best probably being K.W. 6309; but this is drawing a bow at a venture, since I did not see it in flower. K.W. 5834 is rather like R. Moyesii, except in the colour of its flowers, and no improvement on it that I can see (the flowers are Rose-red); and K.W. 6101 is a white-flowered Sweet Briar.

Some of the dwarf Willows were handsome, but they are difficult subjects to raise from seeds, so I may well postpone reference to them. I will pass over also several other shrubs, species of Ribes, Euonymus, Caragana, Philadelphus, Prunus, Acer, Pyrus, Vaccinium, Gaultheria, Enkianthus, etc., as being of no outstanding merit that I could observe—though they may, for all I know to the contrary, develop traits which will endear them to growers—and come to two first-class plants which will undoubtedly come through the ruck and make their mark.

K.W. 5637 is, or I suppose to be, a variety of Sophora viciifolia. But Sophora viciifolia, as I have seen it in China and in England, though free-flowering, is a somewhat anaemic looking object, the pale flowers having only a tinge of violet. My plant has flowers which can only be described as rich violet, as precise a colour as could be. It grows in the rockiest, sandiest soils, or, indeed, in pure sand on the dunes in the river bed, and manages to keep alive all through the long, cold, drought of winter.

Similarly, K.W. 5774 I take to be a variety of Potentilla fruticosa, until it is proved to be otherwise. But the ordinary form of P. fruticosa with little golden buttons of flowers is quite common in the drier parts of Tibet, so this other plant from the wetter regions, with big, golden yellow blooms, at least twice the size of the others, is possibly quite distinct, though the two are very similar in habit. Anyway, K.W. 5774 is 'a winner.' It grows in the general tangle of Rhododendron and other bush which clothes the mountains at 13,000 feet, but often forms solid colonies by itself, especially in very gravelly soil, too poor or too exposed for Rhododendron. In full bloom, covered with flowers, it is a really wonderful sight, and, in my opinion, far ahead of the ordinary P. fruticosa.

These, then, are the shrubs which I should select for my own garden if strictly confined to a dozen of those we brought back from Tibet—a baker's dozen. Rhododendron, 5687, 5733, 5734, 5843, 5856, 5851, 5846, 5845, 5847 and 6279, all dwarfs, be it noted; Lonicera, 5776 and 5872; and Potentilla fruticosa variety, 5774.

With these notes I enclose four photographs which may be interesting as showing some of the vegetation and the nature of the district explored. *F. Kingdon Ward.*

FIG. 95.—WEAVING CLOTH IN A BHUTANESE VILLAGE.

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POTATO EELWORM.

HETERODERA Schachtii, the Potato eelworm, has been known for many years as a pest of Beets, and on the continent has been responsible for much damage. The question of a Potato race of this eelworm is at present attracting a certain amount of attention and experimental work is in progress upon the subject.

During the past few years I have frequently found eelworms present on the roots of Potatos, and have formed the opinion that they are responsible for much loss of crop. The eelworms attack the fibrous roots of the Potato, but do not appear to favour any other portion of the plant. Strachan and Taylor*, however, write: "It is a soil organism, and its attack is confined mostly to the roots of the Potato, although the tubers, also, may be attacked."

If attacked plants are examined, numerous tiny, Pear-shaped, creamy-white bodies will be found loosely attached to the root system; later in the season these tiny bodies turn darker in colour and eventually become brown and fall entirely away from the attacked plant.. The tiny bodies mentioned above are the mature female eelworms, and when in the brown stage consist of the old skin of the female filled with numerous eggs. The eelworms are just visible to the naked-eye on an attacked plant; when an infested plant is pulled out of the ground fairly early in the season many of the eelworms will be found attached to the roots. If, however, the examination is made later in the season most of the eelworms will be left behind in the soil when the plant is lifted.

I first saw an attack of this, or a similar, eelworm, in Shropshire, in the autumn of 1915, but have since found it in several parts of England. The attacks are mainly restricted to soil that is cropped frequently with Potatos, such as allotments and small gardens. Where rotation of crops is practised the pest does not cause any trouble although it is often present. Some doubt has been expressed as to whether Potato eelworms really cause a loss of crop. I believe I am right in stating that up to the time of writing there are no published data of experiments carried out under exact conditions to prove or disprove this argument. The view has been expressed that while considerable damage appeared to be caused by the eelworms to early Potatos, little or no damage was caused to main and late crop varieties. This has not been my experience. I have seen very much damage done to late Potatos for which I could find no other cause than eelworm. I remember, on one occasion, a cottager in Somerset planting an early Potato, viz., Sharpe's Express, on his allotment; after the Potatos were well above the soil they turned yellow and ceased to grow. He attributed the failure to bad "seed," and having some "seed" of Majestic left from his house garden, he planted his allotment again with this later variety. Majestic did no better than Sharpe's Express. I examined the plants of Majestic in August and all were found to be very badly attacked by eelworm. At the same time, I made an examination of many other Potato plots in the same group of allotments and found them all more or less attacked. Self-set Potatos, amongst other crops, were also attacked. I have made careful examination of most other garden crops and many weeds, but have always failed to find this eelworm on anything but Potatos.

That Potato eelworms spread gradually from one primarily affected spot, I have only one slender piece of evidence. On one occasion I saw a small garden planted with the variety Great Scot. A small Potato patch, about two square yards on one edge of the plot looked very sickly, and on pulling up the plants I found they were badly attacked by eelworms. The plants looking sickly had produced a very poor crop, but the surrounding plants, although they had plenty of eelworms on their roots appeared to be healthy, and were certainly carrying a good crop; still further away the Potatos examined showed no sign of eelworms. From this I concluded that this pest had commenced from the sickly-looking patch, and that the eelworms were gradually spreading. I further concluded that when eelworms attacked Potatos early in the season they caused sickly-looking plants and a loss of crop, but if the Potatos were attacked later in the season it was not denoted in the foliage and caused little or no loss of crop. I saw this particular plot again, a year later, and found that it was again cropped with Potatos, this time with the variety King Edward; every plant examined was affected, and the crop was a poor one.

An account of some primary experiments with eelworms carried out at Harpenden is given in an article† by Mr. A. S. Buckhurst. The object of these experiments was to determine whether the Potato race of Beet eelworm could attack other crops. Mr. Buckhurst writes: "Beet eelworm (Potato race).—A Potato plant infested with this eelworm was received from Lincolnshire in 1924 and was kept throughout the winter in a pot of damp sand (previously sterilized). In the spring, the sand was divided into seven parts and each was mixed with a pot of sterilized soil. The following seeds were planted in six of the pots: Oats, Wheat, Beet, White Mustard, Peas and Broad Beans, and in the seventh one of the tubers from the original plant was allowed to grow. In early September the plants, consisting of six each of Beets, Beans and Peas, and twelve each of Oats, Wheat and Mustard, were examined. No trace of the Beet eelworm was discerned either upon the root fibres or in the roots of any of the plants except of those of the Potato, which showed a typical attack, mature females being found on all the smaller rootlets." Later in the article, Mr. Buckhurst writes: "If, therefore, the results of these preliminary experiments prove to be well founded, it would appear that there are several crops which could safely be planted on eelworm infested land so as to avoid planting Potatos, and thus starve out the eelworms"

These experiments certainly bear out my field observations, viz., that Potato eelworms do not occur on any other plant. I have examined many other plants growing in an infested garden, *e.g.*, dwarf and runner Beans, Carrot, Parsnip, Turnip, Cabbage, Brussels Sprouts, Groundsel, Shepherd's Purse, etc.

It seems that the pest is not confined to small gardens and allotments, because in the article first referred to, the authors record experiments carried out by them on farm land in the East Riding of Yorkshire, which was heavily infested with Potato eelworm. Suggested methods of control given in this article are:—"(1) A suitable rotation of crops; (2) Potatos should not be taken two years in succession on land that has once shown signs of Potato eelworm; (3) Care should be taken not to carry the soil from infested areas to non-infested areas through such agencies as implements, Potato sets, etc.; (4) The Potatos should be cleared from the land as thoroughly as possible to prevent stray plants appearing in the intervening crops of the rotation, thus providing food for the eelworms and helping to carry on the trouble; (5) The Potatos from infested areas are usually small, and consequently, they are likely to be fed to pigs. It is not known whether "cysts" will be killed in the dungheap, therefore it would be well to take the precaution of boiling Potatos for pigs in order to destroy any "cysts" in the adhering soil. Soil from Potatos from infested areas should not be swept on to the dungheap."

Gardeners would be well advised to be on the look-out for this pest, and when present, control measures should be adopted. The pest is, in my opinion, more common than is generally supposed. *Somerset.*

EVERLASTING FLOWERS AND ORNAMENTAL GRASSES.

THE plants comprised under this heading are probably not so widely grown at the present time as they were a few decades ago. The great expansion in floriculture generally, and the national love of fresh flowers at all seasons, are probably responsible for this; nevertheless, the fact that nearly every catalogue lists them shows that there is still considerable demand for them, and there are many who think that they are as useful in the flower garden during the summer as they are valuable for the sideboard in the winter.

A few of the "everlastings" the beloved "Immortelles" of the French, are not so showy as many other summer flowers, but most of them are more or less worthy of a place in the border. Some of the most beautiful "everlastings" need greenhouse cultivation, such, for example, as Aphelexis, Phaenocoma, and some of the Statices which are more difficult to grow, and are consequently not suitable for small gardens.

One or two of the annual kinds also do better in the greenhouse, and are valuable for the decoration of the conservatory in the autumn, such as Ammobium and Gomphrena which may be raised from seeds and are easy of cultivation. Where ample space is available and considerable quantities of flowers are needed it is desirable to set apart a border expressly for them, as the flowers need to be gathered early in the season before they are fully expanded and while their colour is at its best. In smaller places a few clumps of the several varieties in the mixed border will answer the purpose.

A moderately rich soil is essential to vigorous growth, and a bountiful supply of flowers, hence, in preparing the ground for these plants moderate dressings of decayed vegetable matter should be incorporated with it. The border chosen should not be near large trees or shrubs or the plants will be deprived of their proper share of nourishment, be short-lived, and yield only a small proportion of the flowers they would produce under more favourable conditions.

Although most of the "everlastings" may be sown in the open ground in April and May they will be late in coming into flower, and consequently more difficult to dry, hence it is preferable to sow them in a cold frame or on a nearly spent hot-bed in April. Sow the seeds thinly, cover them lightly with fine soil and keep the frame close until germination takes place. The seedlings should then be gradually inured to full exposure, sheltering them only from night frosts or keen easterly winds. Towards the end of May the plants will be ready for setting out in their permanent quarters, and showery weather should be chosen for the operation. It is a mistake to plant thickly; each plant should be given ample space for its full development. As a rule, the strong growers, such as the Helichrysums, should be planted fifteen or eighteen inches apart each way, and the weaker kinds like Rhodanthes, not closer than nine inches asunder. The grasses will do well at a distance of from six to nine inches.

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* "Potato Eelworm," by J. Strachan, M.A., B.Sc. (Agr.), N.D.A., and T. H. Taylor, M.A., Dept. of Agriculture, Leeds University. *Journal of the Ministry of Agriculture.* Vol. 32, No. 10, p.p. 941-47.

† "Notes upon Bulb Mites and Eelworms," by A. S. Buckhurst, Plant Pathological Laboratory, Ministry of Agriculture. *Journal of the Ministry of Agriculture,* Vol. 32, No. 8, p.p. 734-38.

Helichrysums are invaluable because of their hardiness and floriferous character. Of the large number of varieties in commerce none surpasses Golden Globe, Silver Globe and Fireball, all of which are very vigorous and floriferous. The several varieties of Rhodanthe are all neat in growth, very showy and particularly valuable for winter bouquets because of their clear colours. The annual Statices are amongst the most popular of "everlastings." Their light, graceful habit makes them especially valuable for room decoration, while the masses of flowers make a rich display in the border over a long period. Xeranthemums are also very showy and much prized for winter decorations.

The flowers of all "everlastings" should be gathered before they expand fully and when quite dry. It is a good plan to tie them in small bunches and hang them head downwards in a dry, airy room, as if laid flat the flower heads are apt to curve in drying, thus reducing their decorative value.

The most valuable ornamental grasses for use in conjunction with "everlastings" are Agrostis laxiflora, A. nebulosa, Avena sterilis, Briza maxima, B. gracilis, Eragrostis elegans, Hordeum jubatum, Lagurus ovatus, Pennisetum longistylum and Stipa pennata. *A. P. C.*

INDOOR PLANTS.

CHINESE PRIMULAS.

The accompanying photograph (reproduced in Fig. 96), of Primula sinensis varieties was taken on February 9 when the plants were at their best. Some of the specimens measured eighteen inches across and fifteen inches in height. A few had so many as twelve trusses of bloom open at the same time, and the others eight or nine. The first blooms appeared about a week before Christmas, and the display has continued to improve through the dull days until now. The seeds of Messrs. J. Carter and Co.'s Holborn strain were sown about the middle of April, 1925. Holborn Blue is particularly beautiful but not quite so free-flowering as other varieties, usually carrying five or six trusses of bloom. Bright Pink is very free, and its bright blooms are charming. The scarlet and the white varieties are the most profuse bloomers. No special treatment has been afforded, but we sterilise the leaf-mould used in the soil and add bone flour to the potting compost. *D. D. Robertson, Mount Clare, Roehampton.*

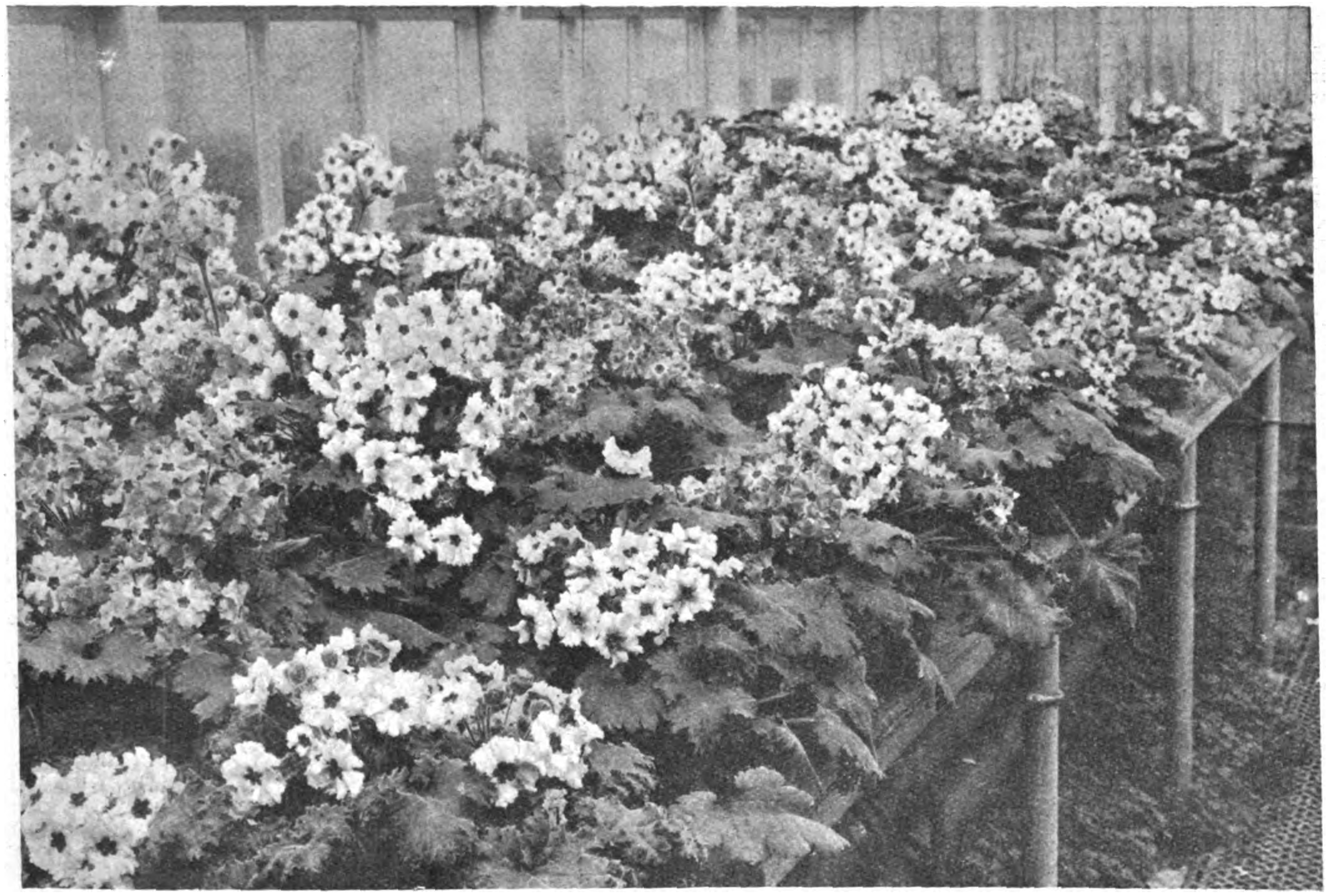

FIG. 96.—PRIMULAS AT MOUNT CLARE, ROEHAMPTON.

HIBBERTIA DENTATA.

This climber is very attractive when utilised to clothe a pillar in, or the rafters of, a cool house; the beauty of the clear yellow flowers is greatly enhanced by the rosy-brown calyces whilst the coppery foliage is not the least attractive feature of an undoubtedly good plant.

The flowers are solitary and axillary; the acuminate leaves are serrated and awned. The growth of the plant is free but not obtrusive, and it makes an ideal subject for the conservatory or cool house.

Hibbertias grow best in a compost of peat and loam mixed with plenty of sand; they are most satisfactory when growing in a border.

Propagation is effected by cuttings. H. dentata was introduced from Australia in 1814 and is illustrated in *Bot. Mag.*, tab. 2338. *Ralph E. Arnold.*

PLANTS FOR TABLE DECORATION.

The decoration of the dinner table presents no great difficulty during the summer and autumn, but in winter and spring, when cut flowers are not plentiful out-of-doors, recourse may be had to plants grown for the purpose indeed, pot plants are a welcome change even when flowers are to be had in plenty.

Many subjects may be grown and flowered well in small pots and there is a good choice of variety even in the dead of winter.

For general usefulness and good effect, Begonia Gloire de Lorraine has few superiors. Two or three batches of cuttings should be inserted at intervals of a fortnight or three weeks, thus ensuring a fresh supply of plants practically all through the winter. The best plan is to strike them singly in small thumb pots in a sandy compost. The pots should be plunged in cocoanut fibre in a propagating case and shaded from bright sunlight. When rooted, they should be taken out of the frame and grown in the house for a week or two in a temperature of 60° to 70°. With this treatment they will be ready for transferring to three-inch or four-inch pots. The compost should consist of two parts fibrous loam, one part leaf-mould, one part old cow manure, and a liberal quantity of silver sand and broken mortar rubble. The soil should be well watered. Continue to shade the plants from strong sunshine and keep the house moist by damping the floors and walls and syringing the plants overhead twice a day. If room is required in the house for other plants during summer the Begonias may be removed to a heated pit after they have rooted freely; whilst in the frames air should be admitted according to the weather. The plants should be shaded slightly at all times when the sun is strong, otherwise the foliage will become yellow. As the pots become filled with roots the latter may be fed with weak soot water, and occasionally with a little Clay's fertiliser.

As autumn approaches, return the plants to the houses for flowering, and keep the growths tied to neat stakes. The temperature of the house should not be excessively high when the plants are in flower, for excessive warmth would cause the blooms to lose their deep pink colour.

Next in order of utility and beauty are greenhouse Primulas, of which there are several kinds that may be used for this purpose. Chinese Primulas are very effective for decorating large tables, and two sowings of these plants should be made, one in May, to provide plants for use before Christmas, and the other about the middle of June to obtain stock for blooming in the New Year and onwards. The seeds should be sown in sandy soil in pots or pans, and placed in a warm greenhouse to germinate. Cover the seed pans with a sheet of glass to conserve the moisture. The soil in which Primula seeds are sown should never be allowed to become dry. The pots or pans should be examined carefully, and if moisture is required, immerse them in tepid water until the soil is soaked. So soon as the seedlings are large enough to handle, prick them off into small pots and grow them on in a warm frame for a week or so, shading them from bright sun. Water each plant only when it needs moisture. In potting these Primulas use a liberal amount of finely broken mortar rubble in the soil instead of too much sand, and also a fair amount of good leaf-mould, especially if the loam is of a heavy texture. When well-rooted, shift the plants into four-inch or five-inch pots and grow them in a cool frame where they can be lightly shaded in hot weather. In the autumn, remove them to a cool greenhouse, using just sufficient fire-heat to ward off frost and maintain a buoyant atmosphere.

Periodical applications of weak liquid manure or soot water will improve the colour of both the flowers and foliage, and here I might mention that the colours most effective in artificial light are pinks of various shades and the reds. White may be used, especially when the plants are stood on a polished table without a cloth. All shades of blue are more effective in daylight, except perhaps a very light blue.

The merits of the Stellata Primulas should not be overlooked as they are very graceful and the foliage is light and attractive.

Other good room plants are Primula malacoides and P. kewensis, the former with rosy-pink and the latter with rich yellow flowers. Sow the seeds of these two Primulas in pans in May and germinate them in a cool, shady frame. When large enough the seedlings should be pricked off into boxes about two inches apart, and finally potted in three-inch or four-inch pots. These plants should be grown in cool conditions. When winter approaches, remove them to a shelf in a cool house, and do not let them suffer from want of moisture, but at all times, especially during damp, foggy weather, water them with great care, keeping the foliage as dry as possible, as they are susceptible to damping, especially Primula malacoides. Princess Mary and King Albert are two of the best forms of this plant.

As a change from flowering subjects, there are plants with green foliage only that are very effective for dinner table decoration, and one of the prettiest of these is Cyperus alternifolius. This Cyperus is easily raised from seeds sown in peaty soil in a warm house. The seedlings should be pricked off singly into small pots or pans when large enough to handle. It is a plant that revels in moisture when well rooted. If the young plants are finally potted into three-inch pots and fed liberally, they will make delightful subjects for dinner table decoration. They grow from six inches to a foot high and throw up several green stems with an umbrella-shaped inflorescence at the top, consisting of a single row of short green leaves radiating from the centre, from which spring short stems of small, brownish-green flowers.

The tops of the plants, if taken off and inserted, or rather, pegged down into sandy soil, will develop roots, and in this way numbers of young plants may be propagated.

Some of the choicer varieties of Pteris are also very suitable for table decoration, and so also is that graceful little Palm, Cocos Weddeliana.

As regards the receptacles in which these plants are placed, that remains largely a matter of choice; silver pots look best, and if these are used, they should have a removable tin lining. The plants may then be placed in these tin linings and the space filled in with sand and well-watered. Wipe the linings dry before placing them back in the silver pots, and then cover the surface with fresh green moss; with this treatment plants will last fresh for a week or more. The Chinese forms of Primulas last fresh the longest, as the foliage does not flag so quickly as that of the malacoides section. I have used all the plants enumerated for this purpose, and can recommend them as being very effective. *R. W. Thatcher, Carlton Park Gardens, Market Harborough.*

ARAUJIA SERICIFERA.

Recent references to this interesting climber, known also as Araujia albens and Physianthus albens, remind me of personal observations made on many occasions, first at Abbotsbury, and later at the famous gardens at La Mortola. In each case these climbers were growing on a southerly aspect, against walls and about pergolas in a natural way, and so presented opportunities of watching insects searching for the nectar that is cunningly concealed at the base of the corolla. The latter is provided with the five limb-like nippers whereby many insects are entrapped.

In searching for food the moths and butterflies have no difficulty in reaching down to the cup-like receptacles containing nectar, but in withdrawal of their proboscis their antennae become fixed between the horny appendages of the corona. No doubt this ensures the fertilisation of the flowers, but it also gives rise to the appellation of The Cruel Plant. An examination of the insects entrapped, many still struggling to get free, and others dead, showed the majority to be the Humming Bird Hawk moth (Macroglossa stellatarum), the small white Cabbage butterfly (Pieris rapae), and bees. The two first, having greater power, sometimes break away from their imprisonment, but I have an impression that the pretty Humming Bird Hawk moth is maimed so severely by losing its antennae that it would soon die. For what purpose this sacrifice is, other than the pollenation of the flowers it is difficult to surmise. When watching the Humming Bird moth and the Cabbage butterfly, I have mounted the steps to examine the flowers of this climber and found the blackish dot-like antennae severed and tightly fixed as in a vice, having been broken off by the struggle of the insects. As everyone knows, the Humming Bird moth has great wing power, darting with lightning rapidity from flower to flower, and appearing beautiful in the brilliant sunshine of the summer. The white Cabbage butterfly is often caught in the same way, but usually is imprisoned until taken by birds, such as the fly catcher and sparrow.

The fruits of Araujia are produced frequently in pairs; they are bladder-like and of a Pea-green colour. They contain a quantity of tightly compressed seeds, attached to which is a fine, white silky pappus. The fruits, when ripe, are dehiscent and gradually display their blackish seeds in the close formation they retain. In due course the hardened pods fall apart, releasing the winged seeds, which gradually drift away, but soon drop, being very easily moved by the slightest wind, leaving the pappus glittering and floating in the air. I have noticed that some portion of the silken pappus remaining in a portion of the capsule is utilized by the pretty dormouse, nesting in the near-by Hydrangeas.

Araujia sericifera, planted in a sunny position along the south coast in a fairly sheltered position would prove very interesting and instructive. This climbing plant withstands winds but not severe frosts, its growth being rather succulent, and containing milky juice. Further inland, a warm and well lighted greenhouse or conservatory would suit it, and, if planted in a tub, alongside a favourite Stephanotis floribunda (to attract moths and butterflies) some interesting results might possibly accrue through cross pollenation. Good soil and cultivation with free drainage suit both these climbers. They also revel in plenty of light and sunshine. The Araujia is easily raised from seeds, and also cuttings, as in the case of the Stephanotis. *Joseph Benbow.*

MESEMBRYANTHEMUM.

(Continued from p. 172).

3.—LITHOPS, N. E. Br.

(Correction).

The name Lithops Ruschiana, N. E. Br., on p. 116 should be corrected to Lithops Ruschiorum N. E. Br., and the name Mesembryanthemum Ruschianum, Dinter, erased from the synonymy. Mr. Maas has pointed out to me that I have made a mistake in supposing that the names M. Ruschianum and M. Ruschiorum, Dinter, belong to the same plant. There is no description of M. Ruschianum, merely a brief sentence in German (quite inadequate for identification) indicating that it is a shrubby species, which I regret to say I did not heed, as I had no suspicion that, contrary to usage and common sense, the same author would use two such slight variants of the same name for different species of the same genus. Mr. Dinter does not admit Lithops as a distinct genus, but uses it merely as a section of Mesembryanthemum, his names being published thus:—Mesembryanthemum (Lithops) Ruschiorum, Dint.

5.—GIBBAEUM, HAW.

I would here like to state that the following account of the very remarkable and interesting plants composing this genus has only been made possible by the invaluable and freely given aid I have received from Dr. J. Muir of Riversdale, who has contributed material of most of the species of this genus accompanied by ample notes, of which I have made free use in the following descriptions.

KEY TO THE SPECIES.

(Including those that have been previously described.)

1.—Base of the notch or fissure not extending across the broadest part of the growth and normally small and situated obliquely at or near the top of it; growths soft in substance or pulpy, light green, sometimes tinted purplish; flowers bright rose pink. **2**

Base of the fissure (or, when under cultivation the two leaves composing the growth are separated and spreading, the base of the gape between the leaves) extending across or situated at the broadest part of the growth, usually distinctly lateral, except in G. album and G. dispar, where the fissure (in native-grown plants) extends across the oblique top, as the two leaves composing the growth are sometimes subequal; growths moderately firm, silvery white, greyish or green; flowers rosy or white. **3**

2.—Growths pubescent with outstanding fine hairs distinctly visible to the naked eye. **pilosulum**

Growths glabrous or if faintly velvety to the touch without a visible pubescence. **molle.**

3.—The part of the larger leaf or lobe above the mouth of the fissure (which is basal), 3–4 times as long as the smaller leaf or lobe and subterete, 3–4 lines thick; flowers rosy. **geminum**

The part of the larger leaf or lobe above the mouth of the fissure or (when under cultivation the leaves of the growth are spreading) above the flat upper surface of the leaf rarely more and usually less than twice as long as the entire smaller leaf or lobe and occasionally very little longer than the latter, and (unless the plant is " drawn up ") more than 4 lines thick or broad. 4

4.—Growths in nature covered with a silvery-white or greyish-white pubescence, sometimes tinted reddish, under cultivation often becoming green or greenish, but with the whitish pubescence evident on the young growths and usually visible under a lens; softly or somewhat harshly velvety to the touch. 5

Growths always green, yellowish-green or dull glaucous-green; glabrous. 8

5.—Growths elongated, somewhat resembling a shark's head, with the closed fissure regularly transverse and distinctly at one side of the growth. 6

Growths obliquely ovoid or subglobose-ovoid, with the closed fissure more or less on the oblique upper side of the growth, usually not much like a shark's head and if so with the fissure transversely oblique, the smaller lobe of flowering growths with a furrow in which the pedicel fits. 7

6.—Pubescence of fine, simple hairs closely pressed upon the surface of the growths and directed downwards, easily seen with a lens; flowers bright rose-pink. **pubescens**

Pubescence microscopic, formed of minute modified hairs with very short radiating branches at their apex. **Shandii**

7.—Pubescence softly velvety to the touch, scarcely visible even under a lens, but under a microscope seen to be composed of a dense felt of minute, much branched hairs; pedicel exserted, 3-6 lines long; flowers white. **album**

Pubescence somewhat harshly velvety to the touch, distinctly visible under a low-power lens, composed of a dense covering of minute, simple, spreading hairs; pedicel not exserted, very short or almost none, apparently not more than 1 line long; flowers not seen. **dispar**

8.—Main stems stout and flattened, naked except just under the growths, prostrate, with erect stout flattened branches; petals rose or rosy-purple; stigmas about 1½ line long, spreading, very stout and probably plumose, acute. **Muiri**

Stems none or weak, but the species are imperfectly known (see description). 9

9.—Growths when at rest under natural conditions obliquely ovoid with a closed, mouth-like fissure just below the middle on one side and of a dull glaucous or pale greyish-green, but under cultivation developing very unequal spreading leaves of a grass-green or slightly yellowish-green colour and somewhat shining; petals rubicund with paler margins; stigmas erect, very short. **gibbosum**

Growths punctate (see note under description), deep glossy green, with linear-oblong, semi-cylindric-triquetrous or subovate leaves; petals uniformly rubicund; stigmas as long as the stamens, very spreading, subulate, with recurved tips, subplumose. **perviride**

Growths yellowish-green, with oblong semi-cylindric leaves, triquetrous above; petals pale rubicund, with a darker midline and the sides at the base whitish; stigmas much shorter than the stamens, very plumose, at length spreading. **luteoviride.**

N. E. Brown.

(To be continued).

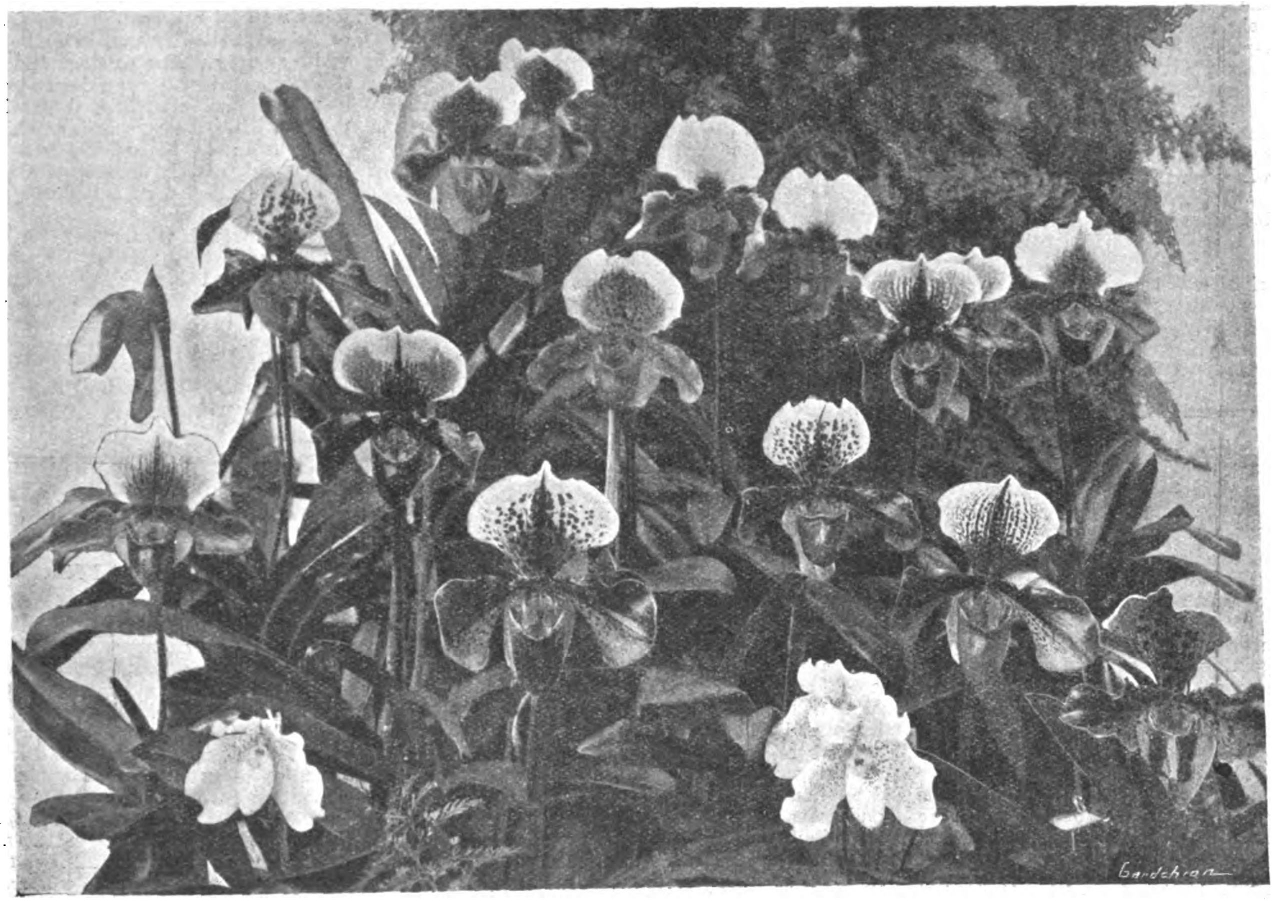

FIG. 97.—CYPRIPEDIUMS AT NETHER WARDEN.

ORCHID NOTES AND GLEANINGS.

CYPRIPEDIUMS AT NETHER WARDEN.

The accompanying illustration (Fig. 97), reproduced from a photograph taken recently, shows a few of the many fine Cypripediums in flower in the collection of Clive Cookson, Esq., Nether Warden, Hexham, Northumberland (gr. Mr. W. J. Stables), and serves to indicate the high cultural skill of the grower. Certain Orchid fanciers have remarked that many of the beautiful Cypripediums raised by Mr. Moore, of Chardwar, for which so many high awards have been given, would be improved if the flowers showed greater length of stem, and included in the illustration are several of that gentleman's finest productions, which do not seem to have this disadvantage; these are C. Memoria F. M. Ogilvie var. The Premier, with foliage as fine as any I have ever seen; C. F. M. Ogilvie, Cunningham's var.; C. F. M. Ogilvie var. The King, the largest and finest form of this hybrid; C. Prince Albert var. Mecca, C. Prince Albert, Chardwar var., C. Cappamagna var. Fred Sander, the most desirable and distinct form among the five varieties of this hybrid at present in flower; C. Nirvana, with two exceptionally large flowers; C. White Cap, a most effective variety, the lower two-thirds of the dorsal sepal being suffused with a distinct brown and in striking contrast to the upper-third of pure white. Not only is the length of stem ample in each case, but the stems are stout and carry the splendid flowers nobly, so that they may be displayed to advantage if required for cut flower purposes.

As one of the pioneers in the raising and cultivation of the winter-flowering section of Cypripediums, it is with pleasure I testify to the splendid progress made in recent years, and also to the fine cultivation seen at Nether Warden.

CYPRIPEDIUM DOS.

This interesting hybrid Cypripedium (C. Mrs. F. Sander × C. Psyche) is now flowering in the collection of Clive Cookson, Esq, Nether Warden, Hexham, for the first time. The foliage shows the influence of the C. niveum × C. bellatulum parent, *i.e.*, C. Psyche. The dorsal sepal is one-and-a-half inch wide, white, shading to yellowish-green at the base, where there are lines of miniature spots of a rosy purple shade. The petals are about two-and-a-half inches long, white, heavily suffused and lined with dots of rosy purple. The lip is white, suffused with purple. The disc of the column is yellow with the usual green centre characteristic to this section of hybrids. The flower-stalk is eight inches long. C. Dos is a most useful addition to this section of hybrids.

CYPRIPEDIUM WARDEN SURPRISE.

This is the result of crossing C. Alcibiades illustris with C. Bantam, Cookson's var., and has a dorsal sepal of perfect shape, about three-and-a-half inches in diameter. The base is greenish, shading to yellow, where there are some brown-purple spots; the upper two-thirds of this segment is white, slightly suffused with purple and lined with rosy-purple spots.

The petals are four inches long and one-and-a-half inch wide. The whole of the central area is suffused with light brown, with a broad margin of yellow on the outer edges, and there is a suffusion of purple lines at the basal half. The lip is bright brown, shading to yellow at the base, and with a bright yellow margin at the top.

This Cypripedium is certainly a desirable addition to the many fine varieties now in bloom in Mr. Clive Cookson's Collection, where it was raised and is now flowering for the first time. *H. J. C.*

FLORISTS' FLOWERS.

RAISING SEEDLING DAHLIAS.

Those who are interested in the raising of new plants will find the Dahlia, and especially the Cactus varieties, suitable subjects for hybridising.

Young plants are the most suitable for seeding, and a few good sorts should be selected as parents. These should be grown in a careful manner and given special attention in thinning and disbudding the shoots. The ground selected for planting should be well-worked and enriched with plenty of old manure.

Towards the end of May the plants should be set out in the open. Plenty of space will be needed; a distance of three feet from plant to plant, and four feet from row to row will allow ample room for passing between the plants. A strong stake should be used for supporting each plant. Towards the end of July or early in August more stakes will be required, as it is at this time of year that high winds are frequent and soon damage Dahlias that are not adequately supported. All side shoots, save five or six, should be removed.

By the middle of August the first blooms will appear, but it is not advisable to select any flowers for seeding until several blooms have developed; indeed, the first flowers are best removed.

When the blooms begin to show an eye hybridising may be commenced. Pull out all the florets as they die off; this is important and should be done every other day. Pollenate the blooms by means of a fine camel-hair brush about mid-day, choosing dry weather for the operation. Continue pulling out all dead florets until all have been removed.

The case containing the seed will be nearly closed up by that time.

In about five weeks the seed-pods will be ready for cutting, which should be done in mild weather; on no account harvest the pods in frosty weather. In cutting them see that the stems are as long as possible, and store the pods in a dry, airy place until they are dry. The crispness of the outside shell will act as a guide as to whether the seeds are ready to be collected.

The seeds should be sown during February or early in March in shallow boxes containing sweet maiden loam mixed with a little sharp sand, and germinated in a temperature of between 60° and 65°.

It often happens that some of the seeds germinate within a fortnight while others take several weeks to develop. It is the slow germinating seeds that require the most attention as these give the best results. When the seedlings are large enough to handle, prick them off, and in a few weeks time they will be ready for placing singly in small pots. Towards the end of May the plants should be removed to their flowering quarters in the open; they should be planted about one foot apart in rich ground. As the flowers begin to appear, thinning should be commenced, and when the blooms are expanded the grower may be rewarded by one or more novelties, whilst the majority of the flowers will make the beds attractive as well as provide useful material as cut blooms. *G. Barton.*

MARGUERITE CARNATIONS.

Sweet-scented flowers are acceptable at all seasons, and when rich perfume is associated with pleasing colour and graceful appearance, plants possessing these attributes are assured of popularity.

The Marguerite Carnation has a combination of these qualities and is capable of producing a large quantity of blooms on a moderate-sized piece of ground. If the seeds are sown in February or early March the seedlings will commence to flower in July and produce blooms in ever increasing quantity up to the time growth is checked by frosts.

The seeds should be sown thinly in a box and the latter placed in a warm greenhouse. The seed-box should be kept shaded until germination takes place. The seedlings should be exposed gradually to the light and air and subsequently placed in a position near the roof-glass, either in a warm house or slightly heated pit.

After the plants have formed a few leaves they may be either pricked off into boxes containing good loamy soil, at three inches apart, or placed separately in small pots. The soil in the box or pot should be made moderately firm.

The plants should be ready for placing in a cold frame by the end of March and gradually hardened off ready for their final quarters a month later. In preparing the bed, no stable manure need be used, but a liberal sprinkling of bone meal and wood-ash from the garden fire should be applied and dug in. Later, and some weeks in advance of planting time, a good dusting of builders' lime will be beneficial; a soil which contains an abundance of lime rubble is especially suited to Carnations. When planting, space the plants at fifteen inches apart and water them in. Much labour will be saved if, instead of tying the shoots to stakes, the patent supports now on the market are used.

Allow the plants to grow without stopping or pinching, and they will branch naturally, but when flower buds form disbudding should be attended to to obtain good flowers.

From this time onwards a slight sprinkling of Carnation manure may be applied at fortnightly intervals and the fertiliser hoed in the soil.

Cuttings of extra good varieties may be taken towards the end of September and, after being rooted, wintered in a cold frame. I have never found plants raised from cuttings grow with quite the same vigour as seedlings, but it is often desirable to keep some of the best forms. Even the best strains of seeds obtainable will produce a small percentage of single flowers. This Carnation may be had in several distinct shades as well as in mixed colours. Before frosts occur, a batch of plants, well-furnished with flower buds, may be lifted and placed in seven-inch pots. These should be kept in somewhat close conditions and shaded for a week. When introduced to the Carnation house or a warm greenhouse they will continue to supply useful flowers up to Christmas at which season they will be greatly appreciated.

These plants may be cut back during January, and, later, the shoots which they produce may be used for purposes of propagation. Another useful Carnation similar to the subject of this note, is Carter's Giant Annual. This produces even finer flowers but not quite so freely as the Marguerite type. *Charles Hodgson.*

IRIS GARDEN.

IRIS TECTORUM.

This very beautiful Iris has not yet proved a success with me. It has increased and multiplied exceedingly, is absolutely hardy and never other than vigorous and healthy, but it does not bloom. I have tried it in a variety of places with but indifferent results.

Once, on the top of a retaining wall, it did fairly well for a season or two, producing a few of its exquisite flowers, including some of the white variety. But as slugs and snails injured it badly, and it was not doing so well as it might, it was moved elsewhere, but with no better results. I intend to try it in an old stone trough, in full sun; in these conditions the plant will have to rely mainly upon applications of manure and water just before and during the flowering period.

In this trough winter wet can be reduced to a minimum, the plants will acquire all the rest they need in the later summer, which I believe is desirable, and it will be easier to keep the above-named pests under control.

The fan-like sprays of the curved leaves, in a delicate yellowy-green, are in themselves handsome and distinctive, but they are not ornamental when shredded by slugs. *J.*

ALPINE GARDEN.

AUBRIETIA.

Aubrietia deltoidea, in its many and varied forms, is a prominent feature in most gardens in spring and early summer. The beauty of these plants is most readily appreciated when they are seen draping a wall or bank or when planted in large drifts in the rock garden; they are, perhaps, not ideal for the alpine garden of restricted area, except that an occasional small colony of a good form may be used with delightful effect.

After flowering the plants may be cut back to cause them to develop new and vigorous growth; cuttings formed of the new growths root freely if inserted during the summer in sandy soil and placed in a cold frame.

Plants raised from home-saved seeds will give a variety of forms and colours, some of them very charming, and there is the possibility of obtaining a new variety of merit.

Enormous advance has been made during the last few years in the improvement of these fascinating plants, both in the size and colour of the blooms, the tones ranging through almost all shades of blue and almost grey to pink and crimson.

Some of the best varieties are Crimson King, Dr. Mules, one of the very best; Fire King, Lavender, Lilac Queen, Mrs. Lloyd Edwards, Bridesmaid, Purple Robe, Prichard's A.1., Violet Queen, Olympia, Wallacei and Peter Barr. These have superseded such old sorts as Hendersonii, purpurea, graeca, Leichtlinii and Campbellii, but these old favourites, to which the rosy-pink Souvenir De W. Ingram may be added, are still of great use for covering old walls, wide expanses of bank and similar situations where a spreading plant may be employed.

The latter forms are excellent for growing in large pans or pots, and pot specimens are very beautiful early in the year. *Ralph E. Arnold.*

MARKET FRUIT GARDEN.

February did not give much opportunity to overtake arrears of winter work. The rainfall at my place amounted to 2·81 inches, which is above the average for the month; and it was not until the close that the land dried enough to allow of much in the way of cultivation, and even then it was hardly fit for planting. Rain and wind also caused a good deal of interruption to winter spraying, which had to be abandoned at the end of the month owing to the forward state of the buds, vegetation having made a sudden spurt under the influence of the warmth and sunshine of the closing week. Conditions, so far, point to a normal rather than an extra early spring; but it seems very early in comparison with the late springs of the two previous years. Myrobalan Plums were in full bloom on February 28, and other varieties were advanced enough to show that there is to be a good display of Plum blossom. The same may be stated of Pears, but it is too early to decide about Apples, though I do not expect much after my heavy crop of last year.

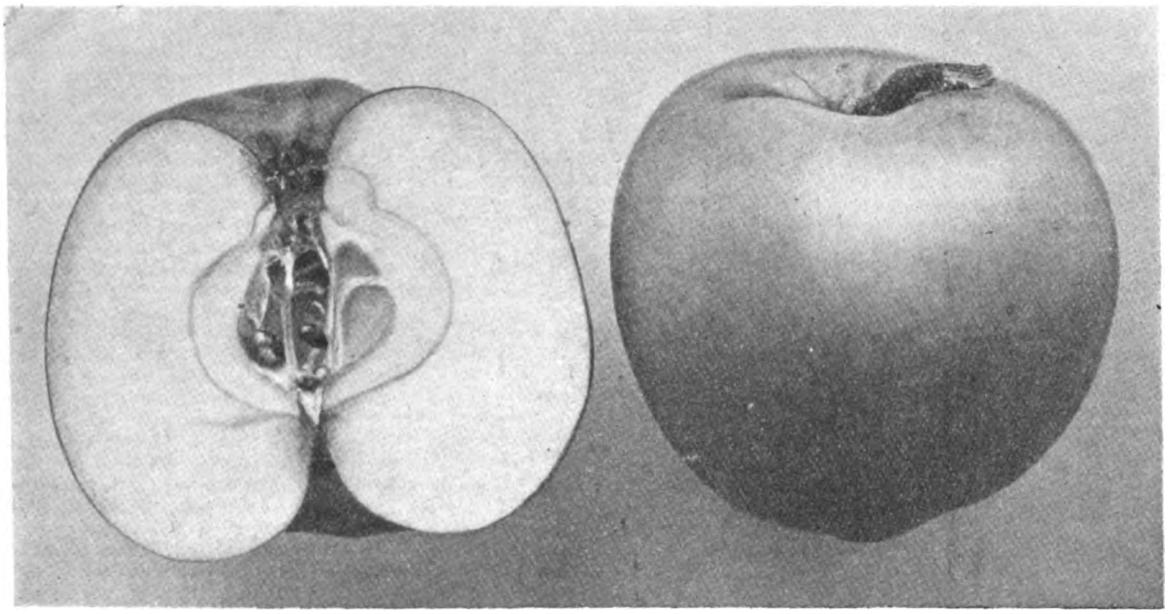

FIG. 98.—APPLE LORD DERBY.

(See p 198.)

Winter Spraying.

It was with much regret that I had to curtail my winter spraying programme; but I found that the tar distillate wash in use was destroying the buds of Beauty of Bath in the last plantation of Apples sprayed. This is not surprising, as the buds were distinctly forward, some of them being just open at the tips. It is quite against the rules to spray with one of these washes with the buds in such a forward state, and I knew I was taking a risk. Last year spraying was continued almost to the end of March without doing any harm, and the buds did not appear to be more forward this year than they were on that occasion. However, many of them were completely destroyed, being turned rusty right through. I hope that some of those at the tops of the trees, where they did not get the full force of the spray on their tips, may have escaped, and that there may be some later buds to develop. Anyhow, only a few rows of trees are involved, so it is not a very serious matter; but it serves as a warning that spraying with tar distillate wash is risky after the buds have emerged ever so slightly from their protective bracts. I finished the other varieties in the plantation with a five per cent. solution instead of seven-and-a-half per cent. without doing any harm. Altogether I have sprayed thirty-six acres of trees with tar distillate wash.

It would probably be wiser, another year, not to attempt to spray the whole place with this type of winter wash, but to do some plantations and leave the rest to be sprayed in spring with one of the usual insecticides. There are only three months, in a normal winter, during which tar distillate wash can be safely used, and one must reckon on losing more than half of that time through frost, rain, wind and mechanical breakdowns. Moreover, there may be some pests that are controlled by, say, a nicotine wash and not by tar distillate, and *vice versa*.

I find that winter spraying needs more time and more wash than any of the sprayings done when the trees are full of leaf. It takes time to wet every portion of the bare wood, and as the men can see exactly what they have sprayed, the work is likely to be more thoroughly done than is summer spraying. Unfortunately, quite half of the wash is wasted on the air, as there is no foliage to catch it. A tree in full foliage catches and holds most of the spray, and can therefore be wetted in less time and with a smaller quantity of wash.

Spraying Apple Cox's Orange Pippin.

A valuable reply to my query as to the safety of spraying this variety with standard Bordeaux mixture in the pink bud stage has come to me through the post in the form of a leaflet* on the spraying of fruit plantations, by Mr. H. Goude, Horticultural Organiser for Norfolk. Mr. Goude recommends a most sensible spraying programme for controlling pests and diseases in commercial plantations. He starts with winter spraying with a tar oil wash to cleanse the trees and to control aphides, Apple suckers, and some caterpillars. He follows this at the pink bud stage with a combined fungicide and insecticide to prevent scab and kill any caterpillars that survived the winter spraying. Two washes have been found effective for this purpose. The one that answers my enquiry is as follows:—

4 lb. copper sulphate (99 per cent. pure).
4 lb. quicklime.
50 gallons water.
2½ lb. arsenate of lead paste.

Dissolve the copper sulphate in twenty-five gallons of water in a wooden barrel by suspending it in a piece of sacking in the water. Gradually slake the lime to a milk and add twenty-five gallons of water; then pour through a strainer into the copper sulphate solution. If the arsenate of lead is needed for caterpillars the paste is thinned down in a little water and added last. This wash was used on all the commercial varieties of Apples, which would, of course, include Cox's Orange Pippin, without doing any more harm than very slight scorching of the foliage when applied at the pink bud stage. Bush fruits under the trees were not injured. The alternative wash is as follows:—

Lime-sulphur (specific gravity 1·3)	1 gallon.
Water	...39 gallons
Arsenate of lead paste ...	...2 lb.

Add the lime-sulphur to about thirty gallons of water in a forty-gallon barrel. Mix the lead arsenate in a pail with water to a consistency of milk and pour into the wash. Then add water to fill the barrel. This wash did no harm to Black Currants under the trees, but it partially defoliated Gooseberries.

Mr. Goude finds, as I have done, that, after the fall of the bloom, Apples are more susceptible to fungicides and more liable to injury. The washes given above caused dropping of fruit and leaves if applied at this stage. Lime-sulphur, even when reduced to a strength of one in sixty or one in eighty, caused considerable leaf drop to follow in June and July. The safest wash to use after blooming proved to be excess lime Bordeaux mixture:—

8 lb. copper sulphate.
25 lb. lime.
100 gallons of water.

Personally, I should not dare to use even this on Cox's Orange Pippin, as a similar wash (6-20-100) did not prove safe at the East Malling Research Station. I do not believe that any fungicide strong enough to do any good is quite safe for this variety after blooming. I shall give just the one spraying at the pink bud stage, and then take my chance of scab. The same will be done with Beauty of Bath, which is almost as sensitive with me; but other varieties that are liable to scab will receive the second spraying after blooming with the excess lime Bordeaux mixture. Mr. Goude has evidently had excellent results from the pre-blooming application, as he states that it carries the crop through the dangerous infection period of the scab fungus in May and early June. It must be remembered, however, that Mr. E. Salmon, who also secured promising results from spraying at the pink bud stage, still insists on the supreme importance of the application given immediately after the fall of the petals. I do not think it

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* *Spraying Fruit Plantations for Controlling Pests.* By H. Goude, N.D.H. Issued by the Norfolk Agricultural Education Sub-Committee.

would be wise to omit this in the case of all varieties that will withstand it.

Labour of Bush Fruits.

I have a larger acreage intercropped with **bush** fruits which should crop this season than I have had for a good many years, and I am having to learn afresh what a lot of labour is involved in their culture. Pruning, manuring, and digging amongst bush fruits have taken so much time during the past winter that the pruning of the older plantations of trees has got badly behind. All young trees have been pruned, but it will only be possible to hurry over those of the older trees that need it most. This is annoying; but I do not suppose that the trees will suffer in anything except appearance. They get little beyond thinning in any case, and that need not be done every year. It is, unfortunately, unprofitable to employ so much labour as one would need to keep the place in really first-rate order. The pretty, spick-and-span fruit farms that I have seen have never been profitable. Those that are paying best always show a certain degree of roughness, though not, of course, amounting to neglect of any essential detail. Bush fruits add so much to the expense of cultivation that they need to crop very fully to be profitable. In a discussion about Black Currants which took place recently in a trade paper, some growers put the life of this crop at six to nine years in these days of "reversion" and big bud mite. If this is really all that can be expected it is easy to see that heavy crops are essential if anything but loss is to result. The bushes do not crop for the first two years after planting, and even in the third year the crop does not amount to much. On land that really suits them, however, they certainly last considerably longer than this, I have seen them flourishing after twenty years in the eastern counties; but probably that was exceptional. *Market Grower.*

FRUIT REGISTER.

APPLE LORD DERBY.

This very large culinary Apple (Fig. 93), seems to grow in popular favour each succeeding year, and no wonder, for it is one of the most certain croppers and makes a tree of sturdy growth with a desirable, upright habit. Apparently it was at one time known by the name of London Major, but its origin has no association with London, for it was raised by Mr. Witham, nurseryman, of Stockport, about the middle of last century.

This Apple is very extensively cultivated by market growers, and during its season, November to December, is a prominent variety on all the fruit salesmen's stands in Covent Garden market.

Apart from its other good qualities, this Apple is much prized by exhibitors for inclusion in collections of culinary Apples at shows, and specimens exhibited are often of huge size. It has a characteristic appearance in its broad ribbing which gives it a very irregular outline. Early in the season the skin is grass-green in colour, but later it becomes mellow, assuming a lemon-yellow tone. The core is somewhat large, due to the big cells in which the seeds are formed, but the flesh is of first-rate quality when cooked; as will be seen on reference to the illustration, both the eye and the stalk are set in deep cavities.

APPLE GRAVENSTEIN.

Regarding the note in *The Gardeners' Chronicle* of March 6, p. 178, respecting Apple Gravenstein, I often wonder to which variety of Gravenstein remarks of this kind refer. Some thirty to forty years ago, having heard that this Apple was a great favourite with the late Queen Alexandra, I wrote to a Danish firm for trees of the variety, and in reply received no fewer than six varieties of Gravenstein; they were planted, and after some years, they (one by one) fruited, but they were all shy and slow in coming into bearing on our strong land, and none of them of very high flavour. I have eaten good fruits of this Apple grown in the south, but do not consider the variety worth growing in the midlands. *A. H. Pearson.*

VEGETABLE GARDEN.

THE PEA WEEVIL.

This insect, which belongs to the Coleoptera, is a fairly common pest to Peas in the seedling stage. For some reason, possible because growth is comparatively slow, first-early Peas seem to be attacked most. The weevils damage the leaves, cutting out semi-circular patches as cleanly as if they had been removed with a pair of scissors. By this act of clean workmanship damage by weevils may be easily known from that caused by birds.

The Pea weevil is of a grey colour with yellow lines running down the thorax and wing cases. It is approximately one quarter of an inch in length.

As considerable damage may be done to a promising batch of early Peas in a short time, gardeners should be prompt in the application of remedial measures. For combating this pest I have found nothing better than dusting the plants with lime, when the leaves are moist with dew. A dressing of nitrate of soda, applied at the rate of one ounce to the yard run of drill will stimulate the plants and thus enable them to recover from damage quickly. Since the creature is, in the main, a nocturnal feeder, hiding in the ground during the day, sóme good may be done by pressing firmly, with the foot, the ground on each side of the drill. Many weevils are by that means so imprisoned that they will die of hunger. One may be certain that larvae are feeding on the roots whenever weevils are engaged on the leaves, because eggs are continually being deposited in the soil. I have never known the larvae do appreciable damage, yet they will become perfect weevils in time. The ground therefore, should receive a dressing of lime at the earliest possible moment, at the rate of one hundredweight per one hundred square yards. *Geo. H. Copley, N.D.H.*

PUBLIC PARKS AND GARDENS.

At a meeting of the Town Council of Edinburgh on March 4, the recommendation of the Salaries and Wages Committee that the salary of Mr. John T. Jeffery, the Superintendent of Parks, be increased by £100 in two annual increments of £50, was adopted. The present salary is £500. At the same meeting consideration was given to ten proposals made by the Parks Committee for the erection of shelters in various parks. The committee proposed an expenditure of £8,430, and suggested that this should be met by the expenditure of £2,100 per annum in the next four years. It was afterwards agreed unanimously that shelters should be provided at Davidson's Mains at a cost of £800; at Hillend at a cost of £850; and at Blackford, costing £130; other proposals will come up for consideration next year, but provision is to be made in this year's estimates for the above-named parks.

The Buxton Corporation is giving its Parks Superintendent, Mr. T. E. Ellis, every encouragement in his efforts to increase the beauty of Buxton. Quite recently it sanctioned the purchase of the following shrubs, etc., for the beautifying of this mountain spa:— 1,500 Rhododendrons, 1,000 bush Roses, 50 climbing Roses, 200 Azaleas, 100 Lavenders, 200 Berberis, 100 Delphiniums, 50 Phloxes, 100 Diplopappus, 100 Santolinas, 100 Aucubas, 50 Daphne Mezereum, 200 Cytisus, 100 Spiraea Anthony Waterer, 100 S. Douglasii, 100 S. Van Houttei, 100 Weigelas, 50 Fuchsia Riccartonii, 50 Sambucus laciniata, 50 Lonicera Ledebouri, 500 Laurels, 24 Deutzia gracilis, 24 D. candidissima, 24 Senecio Grayii, 24 Staphylea colchica, 24 Rosmarinus officinalis, 24 Tamarix hispida, 24 Kalmia latifolia, 24 K. rubra, 50 Buddleias (globosa and variabilis), 24 Prunus Pissardii, 24 Phlomis fruticosa, 24 Olearia Haastii, 24 Ribes, 24 Philadelphus grandiflorus, 24 Ruscus aculeatus, 24 Cornus sanguinea, 24 Leycesteria formosa, 12 Kerria japonica, 12 Rhus glabra, 12 Phillyrea decora, 12 Osmanthus aquifolium, 12 Calycanthus floridus, 12 Cydonia japonica, 12 Caragana arborescens, 12 Eleagnus (in variety), 12 Escallonia Ingramii, 12 Forsythia Fortunei, 12 Hamamelis virginica, 24 Hibiscus syriacus, 12 Clethra alnifolia, 6 Chionanthus virginica, 12 Artemisia Abrotanum, 6 Liriodendron tulipifera, 6 Exochorda grandiflora and 50 Kniphofia alodies.

HOME CORRESPONDENCE.

Gas Water.—I have just read the excellent article on "Arsenical and Other Weed Killers and Fruit Tree Sprays," in your issue of February 27. It would be valuable to know your readers' experience of gas water as a weed killer. This may be obtained free from gas works. I understand it contains ammonia and cyanides. Last season I used two or three forty-gallon casks of this liquid. The results of watering weeds with this liquid were quite good with two barrels, but one barrel of the liquid did not answer so well; it was probably too much diluted with rain water. The Wye Gas Works are quite small and not as fully equipped as larger works. *C. H. Hooper, South-Eastern Agricultural College, Wye, Kent.*

Onions.—In reply to Mr. Copley's letter, on p. 141, I may state that my experience of Onion growing covers a period of nearly forty years, and I have proved by practice that the best results are attainable without the unnecessary labour of potting the plants singly. If Mr. Copley will take the trouble to look over any poor, neglected Onion crop which has never been fed from start to finish, he will see as many, if not more, thick-necked Onions in it than he will find in a crop that has been well-fed from the beginning, or, as he states, at his own critical times. I pull up all thick-necked plants so soon as they can be distinguished to make more room for others. Second growth does not commence unless the crop is left too long before being harvested. From a well-grown crop of Excelsior I can pick out Premier, Ailsa Craig and others, which appear in different catalogues as distinct. *Grigor Roy.*

Romneya Coulteri.—I have been deeply interested in the correspondence regarding Romneya Coulteri and R. trichocalyx. The behaviour of R. Coulteri is of particular interest as it has been generally understood, I think, that R. Coulteri did not run at the roots like R. trichocalyx. For years any plants of the former known to me did not run at the root at all, although they had been established for a number of years. Within the past year or two, however, I have learned from friends that their plants did "run," and one of them, an experienced hardy plantsman and careful observer, told me one of his plants had developed an underground runner beneath the garden path and produced a plant at the other side. I wonder if this is due to climate, soil, or the natural habit of certain individual plants. Practically, there is no apparent distinction between the plants which do and those which do not produce runners. I may add that when I first visited Culzean, now many years ago, when the late Mr. Murray was in charge of the gardens, I saw established plants of Romneya Coulteri, and some of these are probably those referred to by Mr. Harrison on page 160. I saw the same plants later, when Mr. Hepburn was in charge. To my regret, I have not been able to revisit Culzean since Mr. Harrison's appointment, but I hope to have that pleasure some day. I know of no plants of R. Coulteri in Scotland which have produced runners. *S. Arnott.*

Carnation Baroness de Brienen.—We have been interested in the discussion on this variety, because, as raisers of it, we know why some of your correspondents have failed while others are so enthusiastic over it. The variety Baroness de Brienen succeeds best if stopped once only, rather high up the plant, and not later than the middle or end of May. The plants should never receive a check for want of being transferred to their flowering pots. This has been a wonderful old variety but we consider that it has run its course, and recommend in place of it Eileen Low, which produces more than two flowers to one of Baroness de Brienen. *Stuart Low and Co.*

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Nailing Wall Trees.—I have noticed in many places that gardeners still adhere to the old method of nailing wall trees with cloth shreds. These shreds harbour pests. It matters not if the shreds are renewed each year, the pests find their way into the new ones. When spraying wall trees the insecticide will not reach the pests that get inside the shreds. I use tarred twine for securing large shoots, and raffia for small branches of wall trees. When twine is used the shoots should not be tied so tightly as to cause the twine to cut into the wood when the bark has swelled, for it would set up gumming in Peach and other stone fruits. Cloth shreds not only provide a shelter for pests but look unsightly when walls are covered with them. *A. H. Hilliker, The Cottage, Batchworth Heath, Nr. Rickmansworth, Herts.*

Daphne Laureola.—I must confess that the leaves of this Daphne have a slight suggestion of the sweep about them and that the flowers do not fill the air with perfume as do those of my D. Mezereum. In defence of the old garden at Ealing, I must (unfortunately) contradict Miss K. M. Hinchliff. Instead of being late, all the spring flowers here are a good fortnight in advance, in spite of a north aspect. Snowdrops and Scillas are well over, and the Crocuses and Chionodoxas will be gone by the time this is in type. The Forsythia is a magnificent sight this year—nearly over now. The Daffodils have not waited for "the winds of March," but were at their best by the middle of February. They range in size from ten inches to twelve inches in height, to only four inches or five inches. I am not learned enough to know their names. The Almonds were in full bloom by the end of February, and it is no uncommon thing for them to delay their flowering till April. The ordinary wild Primroses have been blooming all the winter in my garden in spite of frost and snow. *E. T. M., Ealing.*

Forcing Lettuce.—Lettuces are not very amenable to forcing. Lettuce Little Gott à Graine Noire is the only variety which grows and forms a heart under glass, though it is useless for cropping in the open. Such well-known Lettuces as Crépe, Passion, and Palatine, all black-seeded sorts, are grown to fill up the gaps between mid-April and the arrival of the outside crop early in June. They are not used for early forcing solely because they do not form hearts while they are under the shelter of the glass. From Mr. F. J. Chittenden's description, I assume that Grand Rapids comes under the same category. This type develops luxuriant basal leaves while the central leaves, instead of curling into a heart, shrivel and blister. To be successful with them they should be planted in shallow frames early in January and kept as hardy as the weather permits. The ventilation of the frames should be increased gradually until mid-April, when the lights should be removed altogether. The Lettuces soon form huge heads, especially when they are planted in well-manured ground. *P, Aquatias.*

SOCIETIES.

ROYAL HORTICULTURAL.

March 9 and 10.—The first of this season's two-day shows opened on Tuesday last at Vincent Square, and was one of the finest seen for a long period. Every bit of space available was filled, and the room for Fellows and visitors was reduced to the minimum, thus proving, once again, the need for a larger hall. Orchids were wonderfully well shown; spring-flowering bulbs occupied considerable space, Rhododendrons provided a special attraction for lovers of hardy trees and shrubs, Cyclamens were superb, and Carnations freely shown as usual, while Roses, hardy flowers—chiefly alpines—Azaleas and Clematis were other good features. Several interesting novelties were forthcoming, including the little Primula Baileyana, which is, we believe, the first plant to flower from seeds collected by Capt. Kingdon Ward during his eighth expedition to China and Tibet.

Orchid Committee.

Present:—Mr. C. J. Lucas (in the Chair), Mr. Gurney Wilson (Hon. Sec.), Mr. R. Brooman White, Mr. Fred J. Hanbury, Mr. H. T. Pitt. Mr. F. W. Flory, Mr. Charles H. Curtis, Mr. A. Dye, Mr. J. E. Shill, Mr. H. G. Alexander, Mr. Fred K. Sander, Mr. W. H. Hatcher, Mr. A. McBean, Mr. Robt. Paterson, Mr. H. H. Smith, Mr. T. Armstrong, Sir John Rutherford, Mr. J. Wilson Potter Mr. Stuart H. Low, and Mr. J. C. Cowan.

Lindley Medal.

Cymbidium Alexanderi, Westonbirt var.—This wonderfully fine Cymbidium, referred to elsewhere in this report was recommended for the award of a Lindley Medal. It has previously received a First Class Certificate. Shown by Sir George Holford (gr. Mr. H. Alexander), Westonbirt, Tetbury.

First Class Certificate.

Odontioda Joiceyi var. John Cowan (*Oda.Coronation × Odm. promerens*).—A handsome, large-flowered hybrid with finely formed flowers of deep crimson colouring, all the segments margined with blush white. Shown by J. J. Bolton, Esq., Claygate Lodge, Claygate.

Awards of Merit.

Cattleya Linda (*Cowaniae alba × Lady Veitch.*)—A chaste and beautiful hybrid of purest white save for some pale citron-yellow shading in the throat of the frilled lip. Shown by Messrs. Cowan and Co.

Cymbidium Castor var. magnificum.—A bold hybrid with large, substantial blooms of blush pink colouring; the lip has deep rosy markings. Shown by J. J. Joicey, Esq.

Cymbidium Toucan (parentage unknown).—In this hybrid the large and well-placed flowers are green, suffused with brown, while the lip has yellowish side lobes and deep red-brown markings on the cream-white apex. Shown by Sir George Holford, Westonbirt, Tetbury.

Cymbidium Wheatear, Westonbirt var. (*Pauwelsii × I'Ansonii*).—The sepals and petals are a lively green with faint brown markings; the lip is bright green with a white front and bright, red-brown, white-edged apex. Shown by Sir George Holford.

Sophro-Laelio-Cattleya Edna var. Mrs. Hanmer (*S-L-C. Marathon × Cattleya Hardyana*).—A wondrously beautiful hybrid that is far removed from its ancestor, Sophronitis grandiflora, but still showing in the shape and colour of the lip some evidence of it. The sepals and petals are rosy-mauve with a purple suffusion and lighter bases. The large lip is orange-yellow in the throat and vivid ruby-crimson shading to royal purple on the wavy-margined, apical part. Shown by Messrs. J. and A. McBean.

Cymbidium Louisae var. splendens (*Pauwelsii × Andreanum*).—In this fine hybrid the combination of cream and pink in the sepals and petals produces a lively and bright fawn-pink colour; the lip has rich red-brown markings on the front lobe, and the side lobes are yellow. Shown by Messrs. Cowan and Co.

Groups.

Messrs. J. and A. McBean contributed a splendid group of Orchids wherein Cymbidiums and Odontoglossums figured conspicuously. Every plant was clear of its neighbour and set in a bed of green moss. A few of the Cymbidiums which attracted our attention were C. Alexanderi, C. A. var. Venus, C. A. var. Ida, C. A. var. albens, C. Pauwelsii, C. Floryi, and C. Excelsior Prince of Orange—a charming fawn pink. The Odontoglossums included the lovely O. crispum var. Evansiae, O. Lilian, O. Colinge, O. Fabia, and the yellow O. Styrax. Odontioda Thela was very fine and other important plants in this wonderful group were the hybrid Oncidium McBeanianum, the pure white Laelio-Cattleya Eunice alba, the lovely Laelio-Cattleya Schröderae var. Challenger, with three immense flowers; Phalaenopsis Rimestadiana, Lycaste Skinneri var. Mrs. G. Hamilton Smith—the largest coloured form we have seen; Brasso-Cattleya Bianca and the brilliant Sophro-Laelio-Cattleya Edna var. Mrs. Hammer.

In Messrs. Cowan and Co.'s fine display there were grand spikes of Cymbidium Pauwelsii in several varieties, C. Ringdove, C. Shilliana, C. Merlin, and the rosy-fawn C. Louisa var. splendens. Cattleya Linda, a pure white hybrid between C. Cowaniae alba and C. Lady Veitch was arrestingly beautiful. Odontioda Grenadier, and O. Pepita with rounded flowers of brown colouring were other notably good things in a fine exhibit.

Sir George Holford (gr. Mr. H. Alexander) showed a few specimen Cymbidiums, and of these the example of C. Alexanderi Westonbirt var. with wonderfully fine, white, substantial flowers was the outstanding attraction; it carried three spikes and a total of twenty-three flowers. C. Toucan, C. Petrel var. Black Dot, with almost black markings on the lip; C. Wheatear, Westonbirt var., green and soft brown, and C. Flamingo var. rotundiflorum, were other lovely hybrids.

Messrs. Charlesworth and Co.'s group was another great attraction, and in it was noted Sophro-Laelio-Cattleya Meuse, with large mauve-purple flowers; the bright yellow Dendrobium Thwaitesae, Veitch's var, a large spike of Odontoglossum Tityus, a pair of plants of the somewhat rare Dendrobium infundibulum; Coelogyne sumatrana, with two long, pendulous spikes; the striking, white-lipped Odontonia Langowoyi, the handsome Odontonia Pittae and the bright Miltonia Lena.

In the foreground of a group arranged by J. J. Joicey, Esq. (gr. Mr. J. Mackay), The Hill, Witley, were two fine examples of Cymbidium Devonianum with pendant spikes; behind these were Cymbidiums in variety, of which C. Phoebe and C. Merlin were especially good, Lycaste Skinneri in variety, with Odontoglossums and Cattleyas.

The brilliant Oncidioda Stuart Low, with a long, trailing spike of over thirty flowers, figured in the centre of the group from Messrs. Stuart Low and Co. Cattleya Tityus, Laelio-Cattleya Avon and the yellow Brasso-Laelio-Cattleya Truffautiana were finely represented, and we noted examples of Bulbophyllum siamense, the rare Dendrobium linguaeforme and Cypripedium Boltonii.

Messrs. Sutton Brothers occupied a corner position and filled their space with Odontoglossums, Odontiodas, Cymbidiums and Cattleyas. Conspicuously good were Brasso-Cattleya Nestor, and Laelio-Cattleya bletchleyensis, while Odontoglossum Hunnwellianum, Ada aurantiaca, Oncidioda Cooksoniae and Odontioda Henyri were other interesting subjects. Messrs. Black and Flory exhibited a few plants but did not put up a group on this occasion. Masdevallia Schröderiana, Odontoglossum pulchellum, Cypripedium Wm. Lloyd and Dendrobium Devonianum were interesting Orchids grouped by Mr. Henry Dixon with Odontiodas, Cypripediums and the inevitable Cymbidiums.

Messrs. Sanders made a fine display of

Cymbidiums which were both fine and extensive. The central specimen was one of C. Ceres with eleven giant spikes of pink flowers; other fine specimens were of C. Pauwelsii, in variety, rose-tinted forms of C. Ceres and C. Erica Sander. C. Louis Sander var. borealis, C. Roger Sander var. Mikado, with a golden glow on its big blooms; C. Puck, deep rose coloured, and C. Fernley Sander. With the Cymbidiums were specimens of Ærides Houlletiana, Brasso-Cattleya St. André, Miltonia St. André—with half-a-dozen spikes—Cirrhopetalum picturatum, and Brassavola Perrinii.

Floral Committee.

Present: Section A.—Mr. Henry B. May (in the Chair), Mr. J. F. McLeod, Mr. Arthur Turner, Mrs. Helen Lindsay Smith, Lady Beatrix Stanley, Mr. H. R. Darlington, Mr. H. J. Jones, Mr. Wm. Howe, Mr. J. M. Bridgeford, Mr. W. H. Page, Mr. D. Allan, Mr. Hugh Dickson, Mr. M. Allwood, Mr. E. R. Janes, Mr. Alfred Vasey, Mr. Jas. B. Riding, Mr. F. Streeter, Mr. W. B. Gingell, Mr. D. B. Crane, Mr. W. P. Thomson, and Mr. G. W. Leak.

Section B.—Mr. Gerald Loder (in the Chair), Mr. W. J. Bean, Mr. James Hudson, Mr. G. Reuthe, Mr. W. R. Cranfield, Mr. E. H. Wilding, Mr. F. C. Stern, Mr. Clarence Elliott, Mr. Geo. Harrow, Mr. L. R. Russell, Mr. Mark Fenwick, Hon. H. D. McLaren, Mr. Reginald Cory, Mr. A. Williams, Mr. G. Yeld, Mr. R. C. Notcutt, Sir William Lawrence, Mr. E. A. Bowles, Mr. T. Hay, Mr. A. Bedford, Mr. F. G. Preston, Mr. W. G. Baker, Mr. E. P. Bowley, Mr. R. D. Trotter, and Mr. Chas. T. Musgrave.

First-Class Certificate.

Rhododendron sino-grande.—This magnificent species was discovered by Forrest in the Sheweli-Salween divide, Yunnan, where it becomes a tree some twenty-five feet in height, in 1912. The stout, shining green leaves, which have a conspicuous white mid-rib, measure eighteen inches in length and seven inches in breadth. They have quite short footstalks and are silvery beneath. The handsome flower truss is composed of a large number of semi-pendulous, bell-shaped flowers which vary from white to a pale yellow and have a brilliant crimson-lake blotch which shows through the flower as a suffused chocolate tone. The fleshy flower stalks are slightly woolly and of chocolate colouring. Shown by H. Johnstone, Esq., Trewithen, Probus, Cornwall.

Awards of Merit.

Azalea Albert-Elizabeth.—This semi-double Indian Azalea was awarded the Sander Memorial Cup as being the best new plant at the Ghent Quinquennial Show of 1923. A group of this novelty illustrated in *The Gardeners' Chronicle* of April 21, 1923, and a fine specimen plant in the issue of March 7, 1925, well illustrate its exceedingly floriferous habit. The rounded, white flowers have a very uncommon Picotee-like red edging. Shown by Messrs. L. R. Russell, Ltd.

Carnation Rouge.—A vividly coloured perpetual-flowering Carnation which may best be described as being of scarlet-cerise colour. The large blooms, which have very good stems, are fully double and made up of stout, lightly serrated petals. In addition to an exceedingly attractive appearance this new variety is deliciously scented. Shown by Mr. C. Engelmann.

Clematis Armandii var. Apple Blossom.—A beautiful variety of the evergreen climbing species which was introduced by Wilson from China in 1900. A very vigorous pot-plant was shown which bore abundant axillary clusters of white flowers which have Apple-blossom flushing on the exteriors. The species was illustrated in *The Gardeners' Chronicle* of January 31, 1925. Shown by Capt. Symons-Jeune.

Helleborus orientalis var. Blush Knight.—A graceful, erect Hellebore which has smoky purple flowers and purplish stems. It is of uncommon and striking appearance. Shown by Messrs. Barr and Sons.

Lachenalia Monte Carlo.—A striking and robust variety which produces good spikes of large, orange-coloured flowers. The inner tube is lightly flushed with green and margined with rosy carmine. Shown by Messrs. Carter Page and Co.

Primula Baileyana—A dainty little plant of rather delicate appearance. The small, long-stalked, spathulate leaves are slightly mealy and the flowers, which are about half-an-inch across, are of a beautiful blue colour with a white eye. Shown by Lady Aberconway, Bodnant, N. Wales.

Rhododendron Fargesii.—This beautiful species was discovered by Farges in Western Szechuan, in 1885 and introduced by Wilson six years later. It is classed with the Selense series and at maturity becomes a large bush some fifteen feet in height. The healthy, green leaves are relatively small and nearly hidden by somewhat loose trusses of rounded, pale rose-coloured flowers. This species was figured in *The Gardeners' Chronicle* of January 28, 1922, and May 13, 1922. Shown by G. W. Loder, Esq., Wakehurst Place, Ardingley.

Rhododendron His Majesty.—This hybrid Rhododendron produces a large, shapely truss of widely expanded flowers of rich pink colour which is a little deeper in shade on the outsides. The large blooms are prettily waved in outline. It appears to be a very vigorous bush and has large, rich green leaves. Shown by Messrs. R. Gill and Son.

Saxifraga Arco Valley.—This attractive, crusted Saxifrage has been freely shown at the recent meetings of the Society. It bears plenty of relatively large, solitary, pale pink flowers. Shown by Mr. Clarence Elliott.

Solandra grandiflora.—The specimens of the "Peach-coloured Trumpet Flower" which were shown were rather paler in colour than usual, but they well illustrated the striking appearance of this tall, climbing, stove-house shrub. It is a native of Jamaica and was introduced in 1781. It is a vigorous species and in general appearance the flowers resemble those of a Datura (Brugmansia). Shown by the Director, University Botanic Gardens, Cambridge.

Sycopsis chinensis.—This Chinese evergreen shrub, which was introduced by Wilson in 1901, has proved to be hardy in the south midland counties, and flowering sprays have on several previous occasions been exhibited at the R.H.S. Spring Meetings. A characteristic spray is illustrated in *The Gardeners' Chronicle* of August 12, 1922. The chief merits of the shrub are a neat habit and its evergreen character. The small uni-sexular flowers are borne in dense little clusters in the axils of the leaves and have orange coloured stamens. Shown by the Hon. Vicary Gibbs, Aldenham House, Elstree.

Groups.

Rhododendrons were an important feature of the show and many very beautiful species and varieties were shown. Just inside the Hall Lady Loder arranged a delightful collection from Leonardslee. The principal sorts were Rhododendron Fargesii, the lovely Chinese species, which received an Award of Merit; R. sutchuenense, R. Cornubia, Leonardslee variety, of gorgeous colouring and unusual size, R. Thomsonii, R. Barclayi, R. arboreum and many large-flowered hybrids. In the front there was a vase of the charming little deciduous species R. quinquefolium, from Japan, which was well furnished with beautiful blush-pink flowers. In addition to the many valuable Rhododendrons Lady Loder staged a branch from the noble tree of Magnolia Campbelli, bearing immense pink flowers, and a very floriferous branch of Cornus Mas.

Sir John Ramsden (gr. Mr. Geo. Taylor), Bulstrode Park, Bucks, also had a well arranged collection of Rhododendrons. The principal sorts were Mrs. Henry Shilson, pink; a rich crimson hybrid of R. Thomsonii and R. barbatum; R. campanulatum var. Campbellii, R. Hodgsonii, R. Campbellii, × R. barbatum and R. ciliatum.

A handsome collection exhibited by Vice-Admiral A. Walker-Heneage-Vivian, C.B., M.V.O., Clyne Castle, Swansea, included goodly trusses of Rhododendron Christmas Cheer, hybrids of R. Thomsonii, R. Falconeri, R. grande, R. Hodgsonii, R. Shilsonii, and a fascinating pink hybrid between R. niveum and R. eximeum.

Rhododendron argenteum and R. Elsae were splendidly shown by Messrs. R. Gill and Son, who also staged beautiful trusses of R. Cornubia, R. Kermesianum, R. Bernard Gill, and R. Thomsonii. Along the front of the Rhododendrons they placed many vases of their excellent strain of St. Brigid Anemones.

Brightly coloured Rhododendrons were displayed by Mr. G. Reuthe in his collection of uncommon shrubs and alpines. He also showed lovely blooms of Magnolia Campbellii.

Gently forced bushes of the hardy hybrid Rhododendrons were shown by Messrs. Wallace and Co. They included desirable specimens of Pink Pearl, Pink Beauty, and J. H. Van Nes. At the end of the Rhododendrons they placed a large pan of Primula cashmeriana Rose Queen of great charm.

On the higher reaches of their sandstone rock garden, Messrs. Wm. Cutbush and Son tastefully grouped Rhododendrons, Azaleas, Wistarias, Forsythias, and other flowering shrubs. On the lower levels they planted Azalea Kaempferi and varieties, Tulipa pulchella, Iris palestina, Ericas and other suitable plants. Forsythias, Ericas, and alpines were shown by Messrs. Skelton and Kirby.

A collection of vividly coloured Azalea mollis × sinensis in splendid varieties was staged by Messrs. R. and G. Cuthbert, who also showed Tulipa Clusiana.

In addition to the Clematis which received the award, Capt. Symons-Jeune displayed splendid examples of other of his seedlings of C. Armandii and an equally fine plant of C. Meyeneana.

Forsythias, Spiraeas and hybrid Rhododendrons formed a good background to the alpines shown by Messrs. Waterer, Sons and Crisp. The alpines included Saxifrages, Tulipa praestans, Narcissus Queen of Spain and N. cyclamineus.

There were many exhibits of small alpine gardens suitably planted. Messrs. W. H. Rogers and Son included batches of Primula capitata, Morisia hypogaea and Soldanella montana. Messrs. Sheppards, Ltd., had examples of Iris bucharica, I. tuberosa and Muscari. Messrs. Cheal and Sons exhibited Anemones, Fritillarias, Saxifrages and Primulas. The Misses Hopkins had a well-disposed alpine garden. Mr. Gavin Jones included various Saxifrages and other alpines with dwarf Conifers.

Small rock gardens were exhibited by Mr. J. Robinson, Messrs. Maxwell and Beale, Mr. F. G. Wood, who displayed Primula dentata and Crown Imperials; Mr. Clarence Elliott, who included Sisyrinchiums, Saxifrages and Irises; Messrs. R. Tucker and Sons, who gave prominence to Saxifraga Sundermannii (of Kew), Soldanella alpina and Narcissus cyclamineus. Messrs. Bakers, Ltd., had goodly bushes of Andromeda and Rhododendrons, with Primulas and Irises.

In their alpine exhibit, Messrs. M. Prichard and Sons planted Mesembryanthemum Brownii aurantiacum, of glowing orange colour, Kalmia glauca, Primula denticulata and Ericas. Messrs. Jeans and Trowbridge showed good examples of Heliopsis breviscapa, Armeria caespitosa, Viola sulphurea and Polygala chamaebuxus varieties.

A large collection of very good Polyanthuses and Primroses was shown by Mr. G. A. Miller. Messrs. Reamsbottom and Co. had an attractive group of Anemone fulgens and St. Brigid Anemones. Mr. J. J. Kettle set up many bunches of Princess of Wales Violets, and Mrs. Howard Fargus, Cranford, Exmouth, was awarded a Card of Cultural Commendation for excellent flowers of the same variety.

Under the clock, Mr. George Prince and Mr. Elisha J. Hicks had beautiful collections of Roses. The former included Victoria, of rich pink colour and delicious fragrance, Columbia, pink, Madame Butterfly, Hoosier Beauty, and floriferous sprays of the yellow Banksian Rose. In Mr. Hicks's collection the pink H.T.'s predominated, and these included lovely blooms of America, Chas. E. Shea, Mrs. Curnock Sawday, Mrs. G. Norwood and

Clovelly. He also had delightful vases of Betty Uprichard and Mrs. H. Stevens.

Carnations were shown in the accustomed quantity and quality. Messrs. Stuart Low and Co. had good vases of Brilliant, Eileen Low and Topsy, and also staged plants of Hippeastrums, Acacias (Mimosas), and Camellias. Mr. C. Engelmann included, in a large collection of Carnations, vases of Spectrum, Saffron, Janet and Nero. Messrs. Allwood Bros. displayed Beauty of Durham, Triumph, Mary Allwood, Wivelsfield Claret and other useful varieties of Carnations. In a well arranged collection of greenhouse Cyclamen, Messrs. Puttridge, Ltd., included such of their good Caledonian strain as Silver-leaved Salmon, White Queen, Salmon Queen and Scarlet Queen.

The Swanley Horticultural College exhibited plants of Primula kewense with its parents P. verticillata and P. floribunda; the former is a good garden plant. They also had seedlings showing interesting variation.

An admirable selection of his seedling Freesias was shown by Mr. G. H. Dalrymple. In addition to new unnamed seedlings of considerable merit he staged lovely vases of Treasure, Daffodil, Apogee and Buttercup, of rich yellow colours; Mouette, lilac; Charmante, rose flushed; Wedgewood, blue; Apotheose, lilac flushed: and Conquest, rose.

A large group of Azalea indica varieties was arranged by Messrs. L. R. Russell, Ltd. This was composed of profusely-flowered plants of exceedingly good varieties and made an effective display.

Considerable taste and skill were displayed by Messrs. J. Carter and Co. in their group of Hyacinths. The many varieties included large spikes of Marconi, pink: L'Innocence and Madame Kruger, white: Ivanhoe, dark blue; Czar Nicholas, light blue; Lady Derby Queen of Blues, Dr. Lieber, medium blue, and Queen of the Pinks.

Narcissus and Tulip Committee.

Present: Mr. E. A. Bowles (in the chair), Mrs. Brodie, Miss E. Willmott, Mr. Geo. Churcher, Mr. J. W. Jones, Mr. Herbert Smith, Mr. F. Herbert Chapman, Mr. Reginald Cory, Mr. Charles H. Curtis, Mr. B. D. Williams, Mr. J. Duncan Pearson, Mr. G. W. Leak, Mr. George Monro, Mr. W. Poupart, Mr. Peter R. Barr, Mr. W. B. Cranfield and Mr. A. Simmonds (Secretary).

First-Class Certificate.

Narcissus Medusa.—A Poetaz variety of great beauty and fragrance. The white flowers are of good size and form and have an orange-coloured cup that is very distinctly cup-shaped and not flat. This Narcissus received an Award of Merit as a variety suitable for market in 1925, and now obtained the higher award. Most of the stems are stout, of good length and twin-flowered. Shown by P. D. Williams, Esq., St. Keverne, Cornwall.

Award of Merit.

Narcissus St. Agnes.—A Poetaz variety, with large, rounded flowers, white, with a deep orange cup. The segments overlap and are very attractive. Shown by P. D. Williams, Esq.

Groups.

A large collection of Narcissi was staged by Messrs. Barr and Sons. Amongst the large trumpet varieties we noted Golden Harbinger, Golden Song and Mustapha, of rich golden colouring. St. Germans, sulphur yellow, Silvereen and Duke of Bedford, bicolors; Laughing Water, a delightful Leedsii, and John Evelyn, an Incomparabilis with a large frilled corona, were also admirable. Adjoining the Narcissi were displayed the beautiful blue Tecophilaea cyanocrocus, Fritillaria Meleagris varieties, Iris Naomi and some good alpines.

The large Trumpet Daffodils predominated in an excellent collection of Narcissi arranged by Messrs. J. R. Pearson and Sons. The chief varieties were Potentate, Golden Emperor, Refined Gold, Victoria, bicolor; Empire, sulphur yellow and white, bicolor; and Hon. Mrs. Francklin, a lovely Incomparabilis variety.

Mr. J. W. Barr had many vases of King Alfred, Royal Gold and Flame, Trumpet Daffodils; Camilla, Incomparabilis; Memoir, Leedsii, and Alice Knight, of great merit, in his collection. Messrs. Cartright and Goodwin staged vases of Empress, Glory of Leiden, White Countess, Ceres, The Fawn and Jeanette.

A large collection of Dutch Tulips of brilliant colouring was arranged by Messrs. Sutton and Sons just inside the hall. The chief varieties were Prince of Austria, orange-red, Couleur Cardinal, McKinley, deep rose; Van der Neer, purple; De Wet, bright orange; Brilliant Star, scarlet; and Rising Sun, yellow.

A collection of Darwin and Dutch Tulips with very floriferous plants of Dicentra (Dielytra) spectabilis was attractively arranged by Messrs. R. H. Bath, Ltd.

Fruit and Vegetable Committee.

Present; Mr. C. G. A. Nix (chairman), Mr. W. Poupart, Mr. P. C. M. Veitch, Mr. H. S. Rivers, Mr. A. H. Pearson, Mr. H. Markham, Mr. A. Bullock, Mr. T. Pateman, Mr. G. F. Tinley, Mr. F. Jordan, Mr. E. Laxton, Mr. A. E. Newby, Mr. J. Wilson, Mr. A. Metcalfe, Mr. E. Beckett, Mr. J. C. Allgrove, Mr. P. D. Tuckett, Mr. E. A. Bunyard, Mr. W. H. Divers, Mr. J. Cheal and Mr. A. N. Rawes.

Mr. E. Beckett showed fruits of Royal Late Apple which received an Award of Merit in 1896. The opinion was expressed that this was one of the best late culinary Apples, but that it was little known. Young trees, it was stated, were rather shy in bearing, but older trees crop very heavily, as is the case with some other sorts, such as Blenheim Pippin.

Groups.

Messrs. G. Bunyard and Co. again exhibited a collection of Apples representing select sorts in season. On this occasion the varieties were Brownlee's Russet, Blenheim Pippin, Jonathan, Belle de Boskoop, Lord Hindlip, Claygate Pearmain, Edward VII, King Acre Pippin, Sir John Thorneycroft, Ontario, Encore, Baumann's Red Winter Reinette and Lane's Prince Albert.

An interesting collection of varieties of Rhubarb was exhibited from the Society's gardens at Wisley. There were some twenty distinct sorts, and the range of development in the leaves was very great. The finest stalks were of Laxton's No. 2, and others that were especially early were Seedling Early Red and Early Red, both very similar, but distinct: and Groveless Crimson. The finest flavoured variety is Tobolsk, which never makes large sticks. Bedford Scarlet is fairly early and the stalk is coloured red all through, which also obtains in Collis' Ruby, both these varieties making very rich juice in tarts.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT.

At the annual general meeting of members of this admirable society, held at the Royal Horticultural Hall, on Monday, March 8, Mr. Charles H. Curtis presided over a moderate attendance which included members from so far away as Oxford, Crawley and Reading.

The report of the committee and the audited accounts for 1925 were presented. The former shows that the effective membership of the society is 1,795, ninety-two having been admitted during the year. Payments in sick benefit came to £984 7s. 2d., or about £3 less than in the previous year. Sums paid to chronically sick and aged members totalled £308 2s. 2d., this item showing a considerable increase over the amount paid out from the Distress Fund in 1924. Nominees of deceased members received a total of £680 0s. 3d., in addition to Funeral Benefits amounting to £305. The total income for the year was £6,701 16s. 6d., and the total expenditure (including a sum of £2,000 invested) £5, 820 13s. 6d. The entire cost of management was £482 2s. 3d.; the £2,000 invested during the year under review brings the total invested funds to over £70,000.

In moving the adoption of the report and accounts, the chairman pointed out the need for additional and young members so that the society might become increasingly useful, whereas, failing such increase, the committee might have to recommend the reduction of the present rate of funeral benefit. Advertising the society in the horticultural press had been thoroughly justified, but country members must accept their responsibilities and secure recruits. That the society is ably managed and its members have a fine record of good health was proved, he contended, by the greatly increased benefits offered to "insured persons" in the State section, and he ventured the opinion that no other society could offer so much to its members.

Following the adoption of the report and accounts, Mr. Arthur Bedford, the treasurer, was reappointed and thanked for services rendered. The trustees, auditors and retiring members of committee were also thanked. Messrs. Gunner and Puzey were reappointed auditors, and all the members of committee were re-elected. The horticultural press was accorded thanks for kindnesses shown to the society.

It was agreed that £100 be transferred from the Surplus and Reserve Fund to the Advertisement Account to enable the committee to continue to advertise the society.

An open discussion took place on the question of allowing members to continue their subscriptions to, and receive benefits from, the Sick Fund, after reaching seventy years of age. Mr. Butler suggested an optional arrangement but there appeared to be difficulties in regard to this point. Most members expressed sympathy with the principle set forth, and on the motion of Mr. Trollope, seconded by Mr. Bartlett, a recommendation to consider the subject and report as to its possibilities, was passed to the committee.

The chairman was thanked for presiding and reappointed chairman of committee for the twenty-sixth successive year.

WESTERN COMMERCIAL HORTICULTURAL.

The exhibition which opened at Penzance on March 4 surpassed all previous shows of its kind. The number of entries was almost double that of the previous year, whilst the quality of all the exhibits showed great improvement. The main commercial classes for packed Broccoli and packed flowers were very well filled. over thirty wooden crates being shown in one class and a number of Cornish "wickers."

An excellent display was made by about forty boxes of flowers packed ready for market, and competition was particularly keen. In many of the bunch classes as many as seventy and eighty bunches of a variety were shown, and in the Violet classes, for the small Cornish bunch, 180 bunches had to be judged.

Another feature of the show was the competitions held during the afternoon and evening of each day for Broccoli packers and also for flower bunchers.

The show has outgrown the accommodation of the local hall, and many of the trade exhibits had to be seriously curtailed. Firms exhibiting included the following:—Messrs. Avis and Co., The Minney, Penzance; Messrs. Barr and Sons, Covent Garden; The Devon Rosary, Torquay; Messrs. Ruse and Sons, Falmouth. Messrs. Treseder and Co., Truro; Mesrs. Mogford, Tirkin and Co., Newquay; Messrs. George Monro, Ltd., Covent Garden; Messrs. Pugh and Co., Exeter; The Potash Syndicate; Mr. C. Martin; Crown Point Basket Co Mr. F. Rogers, St. Dominic; Messrs. R. Veitch and Son, Exeter; Mr. R. A. Foster-Melliar, Bude; Morland Carnation Gardens, Marazion; Messrs. Sutton and Sons, Reading; and Messrs. Howell Mabbott and Co. Penzance.

In the absence of Lord St. Levan, the show was opened by the Mayor of Penzance (W. H. Lane, Esq.), who read Lord Levan's speech, in which his lordship emphasised the importance of good grading and marketing and particularly the need for co-operation amongst the growers. Mr. W. Lobjoit, the Controller of Horticulture, pointed out the need for scientific methods in cultivation, and although he agreed that a good deal of progress had been made as a result of the three previous shows, there was still plenty of room for improvement.

The show owes much to its chairman, the Rev. A. T. Boscawen. Some very valuable conferences were held during the afternoon of the first day. It was very much regretted that Mr. Monro was unable to take the chair at the Flower Conferences, but his place was very ably filled by Major Dorrien-Smith, of Tresco. Mr. F. J. Chittenden gave the growers a very interesting talk on eel-worm and the risks they were running in not taking precautions against this very serious pest. Major Dorrien-Smith said he could not understand why the Cornish growers had allowed their steriliser, erected at Mr. Bazeley's factory, to pass out of their hands. He was, however, fortunate in now having this plant which he considered the most efficient in the country. An interesting discussion also took place on vegetable matters and railway rates.

At the opening of the second day, the Lord Lieutenant of Cornwall (J. C. Williams, Esq.), gave an address, and referred particularly to the value of good culture in the growing of bulbs. He also congratulated the committee on the huge success of the show, and said it was obvious that more accommodation would have to be found.

A conference of growers was also held on Friday afternoon to discuss closer co-operation and it was proposed to have a local flower and vegetable growers' branch of the Farmers' Union. Considerable interest was taken in the Broccoli packing and flower-bunching competitions. The winning lady in the employees' competition was Miss I. Nance, who took only one minute thirty seconds to bunch and tie six bunches of Daffodils.

In all probability the most outstanding exhibit in the show was the wonderful collection of new and seedling Daffodils staged by Mr. P. D. Williams of Lanarth, St. Keverne. The flowering shrubs exhibited by the Rev A. T. Boscawen also showed what the climate of Cornwall can produce. His collection included Erica melanthera and Myrtus bullata.

READING AND DISTRICT GARDENERS'.

The usual fortnightly meeting of this Association was held on the 22nd ult.. There was an excellent attendance and Mr. F. J. Green presided.

In a competition for six spathes of Richardias (Arum Lilies) many splendid specimens were staged. The first prize was gained by Mr. A. W. Gower, Calcot Grange Gardens; the second by Mr. J. Wynne, Hammond's Gardens, Checkenden, and the third by Mr. G. Carter, Chazey Hill House Gardens, Mapledurham. In the non-competitive section, Mr. F. Townsend, The Gardens, Hillside, Reading, staged a group of magnificent plants of Primula malacoides, and was awarded a First-Class Certificate of Cultural Skill, and received the congratulations of the members. Mr. A. W. Gower also received a First-Class Certificate for excellent plants of Cinerarias.

The subject for the evening was "Perennial and Biennials from Seeds," and the lecturer was Mr. F. Townsend. He described briefly many of the best perennials and biennials which can be raised from seeds, including Michaelmas Daisies, Delphiniums, Anchusas, Gaillardias, Pyrethrums, Campanulas, Canterbury Bells, Hollyhocks, Lupins, Coreopsis, Geum Mrs. Bradshaw, Pentstemons and Papavers. An excellent series of lantern slides showing the habit and form of the various kinds added increased interest to the lecture.

Obituary.

Malcolm Macnaughton.—It is with much regret that we have learned of the death, in Edinburgh, on March 1, of Mr. Malcolm Macnaughton, gardener to the Earl of Mansfield, at Scone Palace. Mr. Macnaughton, who was in the prime of life, was one of the ablest of Scottish gardeners, and had been at Scone for several years. He is survived by his widow, who is a daughter of the late Mr. R. P. Brotherston, for many years gardener to the Earl of Haddington, at Tyninghame.

TRADE NOTES.

On and after March 15, Mr. T. Lewis's address will be The Rock, Dolgelley, Merionethshire, instead of 45, Uxbridge Road, Hanwell, London, W.7.

The manufacturers of the Atco Motor Mower have augmented their range of models, and owing to arrangements for large-scale production (5,000 Atcos are already in hand for 1926), the prices have been very materially reduced. They are now within the reach of everyone possessing lawns of, say, 500 square yards and upwards. For 1926 a fourteen-inch model has been introduced. A feature attributable to "Atco" success is the institution of a service scheme. This is not confined to the posting of spare parts—such parts as are required are personally fitted without removal of the machine, and without appreciable delay and inconvenience to Atco patrons. Such a scheme is costly, but the expense is justified by the appreciation expressed, and the personal recommendation given by Atco users to their friends. Particulars of these and other Atco specialities may be obtained from Messrs. Charles H. Pugh, Ltd., Whitworth Works, Birmingham.

LAW NOTE.

THE RATING OF NURSERIES.

A very important point at law affecting the principle of rating nurseries in Scotland was decided by Sheriff Mercer on Wednesday at Glasgow Sheriff's Court. The action was raised at the instance of Nether Pollok, Ltd., and took the form of an appeal against the Corporation of Glasgow in charging municipal assessments on three dwelling-houses and nursery grounds on the total yearly rental of the subjects of £238. In his interlocutor the Sheriff explained that the subjects are let upon lease at a cumulo rental and interest in the valuation roll as "nursery, dwelling houses, etc," at an annual value of £238. The respondents assessed the appellants on that value. In the appeal it was claimed that the subjects are a nursery, and therefore, in terms of the City of Glasgow Act, 1891, section 36, they are only liable to assessment on one fourth of the yearly rental. The assessor, however, maintained that the existence of the dwelling-houses on the ground made the subjects something other than a nursery. In the event of their full demand being held untenable each of the parties put forth the minor claim that the dwelling-houses should be assessed as such on their full value and the balance of the subjects as nursery ground on one-fourth their value. That view, in the Sheriff's opinion, was the sound one and he accordingly found that the dwelling-houses fell to be assessed at the yearly rent or value of £70, and the remainder of the subjects at one-fourth of the balance of the yearly rent or value of the whole of the subjects as entered in the valuation roll.

GARDENING APPOINTMENT.

Mr. C. Ralph, previously gardener to U. R. Burke, Esq., Edensor House, Bakewell, Derbyshire, as gardener to the Right Hon. Viscount Knutsford, Kneesworth Hall, Royston, Hertfordshire. (Thanks for 2/- for R.G.O.F. Box).—Eds.

ANSWERS TO CORRESPONDENTS.

Binding Gravel on Paths.—*F. M.* We are not acquainted with any suitable preparation for binding the surface of gravel paths. Unless the gradient is very steep, good hoggin, properly treated, usually makes a firm surface that resists the washing influence of rains. We assume that in the steep paths drains, or soak-aways, are provided at suitable points, and that tiles or slates have been set on edge at the sides of the paths with an inch or so protruding, as these are usually very valuable in similar circumstances. We would suggest that you try the effect of mixing crushed cockle shells with the gravel used for surfacing. This could be done on a limited run of one of the steep paths and if found effective adopted for the remainder. It may not be necessary to remind you that previously to re-surfacing the paths the old surface should be well-scarified in order to "key" the fresh material.

Hyacinths Failing.—*M. P.* Either the Hyacinth bulbs were insufficiently ripened or the soil contained something inimical to the roots. As the bulbs appear to be quite sound the fault cannot rest entirely with them, although the size of the wilted spikes shows that they were not of first-class flowering quality. The entire absence of roots, however, suggest the inclusion of some substance deterimental to the plants in the potting soil.

Lily Seeds.—*J. K.* We believe seeds of Lilium regale may be obtained through most of the seedsmen who advertise in our columns.

Names of Plants.—*Ardtara.* Datura sanguinea. *Artus.* Pieris floribunda. *M. C.* Iris unguicularis. *L. T. P.* Canarina campanulata. *V. J. H.* Specimens too scrappy for correct identification. A is Primula Auricula variety; B. Holcus mollis variegatus; C. Campanula species; D. Sedum species, probably S. altissimum; E, F and H, Mesembryanthemum species; G, Heuchera species; I, probably an Erigeron or Grindelia.

Strawberry Plants Affected by Eelworm.—*G. W. W. S.* A few Eelworms were present in the single plant received. We advise you to send a batch of six diseased specimens to the Director, Fruit Research Station, Long Ashton, near Bristol, where eelworm diseases of the Strawberry have been studied.

Vine Weevils.—*W. C.* The great difficulty of detecting these pests is due to the fact that they feed principally at night, hiding by day. An old method of reducing their numbers is to enter the greenhouse at night with a lantern and catch them on the plants, or if you stand the plants on a white sheet and disturb them by a light at night, they will fall on the sheet and be easily caught. The larvae are more difficult to catch, and for their destruction carbon bi-sulphide injected in the soil near the roots of the plants is to be recommended. Make holes with a piece of stiff wire and pour about a teaspoonful of carbon bi-sulphide into each hole. This fluid is very inflammable and needs care in handling.

Zonal Pelargoniums in Winter.—*M. P. J.* To flower Zonal Pelargoniums during the winter the plants should be specially grown the previous summer, when they should be stood out-of-doors in an open, sunny position, and have all their flowers removed. House them during September in a warm, sunny greenhouse, where a dry, buoyant atmosphere is maintained; a little fire-heat is essential, especially during dull weather. You will not manage to flower Pelargoniums successfully in a dwelling-room.

Communications Received.—G. C. (Thanks for 6d. for R.G.O.F. Box.—E. S.—W. G.—E. T. M.—F. D. J. C.—W.P.—J. M.—A. D. W.—E. J. B.—W. G. L.—H. M.—W. S.—C. E. G.—C. I.—W. T.

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SUPPLEMENTARY PLATE.

Cymbidium Flamingo var. roseum.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 42·7.

ACTUAL TEMPERATURE—
The Gardeners' Chronicle Office 5, Tavistock Street, Covent Garden, London, Wednesday, March 17, 10 a.m. Bar. 30·2. Temp. 45°. Weather, Bright, with cold wind.

The Vegetation of South Africa.

SOUTH AFRICA and its vegetation will always exert a peculiar fascination not only on the botanist and horticulturist, but on every observant traveller. For with great variety of physical features and of climate there go remarkable successions of plant societies. Of these assemblages, one great group consists of plants which belong to a tropical and sub-tropical flora—as witness the trees, *e.g.* Barringtonias of the Mangrove swamps of Natal, and the Podocarpus high forests of the eastern, drier region. To this alliance belong species of Rhus, members of the Rubiaceae, species of Buddleia, etc. Included in this tropical-subtropical group also are plants of the grass-lands which show an increasing dwarfness the nearer their habitat approaches desert conditions, and culminate in the varied and remarkable plants of the Karroo and other desert areas—species of Crassula, Mesembryanthemum, Sarcocaulon, Euphorbia, Stapelia, Kleinia — which are among the most extreme and remarkable dry-climate plants to be found in the world. The other great alliance consists of temperate plants, and is found especially in mountains and in the south-west region of winter rains. The members of this group comprise a large number of endemic forms and extend northward in broken successsion through the mountains of the tropics to Abyssinia and thence connect with the vegetation of the Mediterranean. Among this group are the hard-leaved, often Heath-like, small trees and shrubs belonging to many Natural Orders which are, or used to be, represented in our glass-houses—plants of the Proteaceae, Ericaceae, Rutaceae, Geraniaceae (Pelargonium), Verbenaceae and various bulbous Monocotyledons. In places where conditions are indifferent the tropical-subtropical element and the temperate element of the South African flora are mingled. Needless to state such a flora presents many problems to the botanist and the plant geographer. The older botanists, including Darwin and Hooker, sought to discover how this flora came to be assembled there. The newer school has set itself a somewhat different task—although in truth it, like the older school, still searches for origins. It seeks to define the various types of vegetation and to discover the conditions which have led to the present distribution of these forms of vegetation. It is from this latter point of view that Dr. Bews[*] has attacked the problem of South African vegetation. An illustration may perhaps make this ecological standpoint clearer. The vegetation of the world at large consists according to statistical computations, of 43% of trees—the remainder of the world's vegetation is made up of other types—shrubs and the like. In South Africa the tree vegetation forms only 31% of the whole. Again, of geophytes, that is, plants with underground storage organs (bulbs etc.), the world's vegetation contains 3%, whereas that of Natal contains no less than 18%. The ecologist, having analysed a vegetation into its various and numerous component forms, seeks to discover the significance of these forms and of their relative preponderance or rarity. Already this newer mode of attack on the old problem of the evolution of plants is leading to results of interest. For example, there appears to be ground for believing that, generally speaking, the woody type of plant—tree or shrub or woody perennial—is more ancient than is the herbaceous type of vegetation. Now from remote geological times certain types of habitat have persisted. There has, for example, always been a moist, warm, tropical forest habitat, ranging wider in certain ancient geological times than it does now, but always persisting. And with it has persisted the type of vegetation characterised by the growth form of trees with large, undivided leaves. Though the variety of species which frequents these forests is vastly great—yet they all retain the tree (or liane) form of vegetation. So also is it with swamp—and stream bank—vegetation. Since vegetable life began, the conditions obtaining in swamp and on stream bank have remained and so too has persisted the form of vegetation which to-day characterises these situations. But as the world has grown older changes have crept over it—either enduring or transient, yet in the latter case recurring, and hence it is not surprising to find that the flowering plants of the present day show—as geologists declare—a greater diversity of form than they did in earlier geological epochs. At certain times, and over larger or smaller areas, desiccation has occurred and with desiccation—provided that it be not too extreme—new vegetation-forms came into being and developed to the extremes which are to be found in the deserts of to-day. The ecologist has therefore an interesting task—to trace as in the last mentioned case, the gradual fading away of the tree into the small tree, the smaller more branching shrub with increasingly reduced leaf-surface and increasing division of the leaf-veins, the appearance of compound in place of simple leaves, the hardening of the tissues into thorns, the assumption of a fleshy habit, the periodical divestment of leaves, and so on, down to the extreme reduction displayed in the most xerophytic type of vegetation. He has also to discover the steps whereby grass-land came into being, for let it but come into existence and behold the earth has a new suit of clothes! a new mantle under which all sorts of new growth forms—bulbs and tuberous and rhizomatous plants will have a chance of developing. The ecologist, moreover, has to consider no less than the older plant geographer considered — the migration of plants; for it is easy to show that in a country like South Africa there has been a steady influx of plants from the north. Thence came, for example, the plants of tropical alliance. As an illustration of the evidence of migration that provided by the Mangrove swamps may serve. As Dr. Bews points out the tree forms of Mangrove in Natal are but three in number—Barringtonia, Hibiscus tiliaceus and Canavalia spp.; but their humbler associates, which doubtless came with them as they trekked southward, have outdistanced the trees, and strand plants as Sporobolus pungens, Passerina, etc., extend beyond Natal, reaching indeed so far as the Cape. River valleys also provide migratory routes up which, after their coast-wise journeying tropical species have travelled. Thus, for example, Dicrostachys nutans, a typical coast-belt species has made its way up the Tugela Valley to no inconsiderable distance. Yet Nature both encourages and restricts immigration. Thus, as Dr. Bews has shown, of thirty-two rare species in the Tugela Valley, not one has reached the next valley further south (the Ungeni). On the difficult subject of the migrations of grass-land types of vegetation, the author quotes an acute observation of General Smuts who is an ardent and accomplished botanist, to the effect that in spring sub-tropical species predominate in grass-land (Eragrostris, Digitaria, etc.), whereas as summer advances and temperature and rainfall increase, the *same ground* is dominated by species of temperate alliance (Andropogon, etc.), and at these periods the sub-tropical forms are not in evidence. General Smuts adds—and all must concur with the observation—"this temporal or seasonal succession in response to the growing heat and rain is to my mind a wonderful thing and yet perfectly natural and understandable, proving how closely tropical and sub-tropical are associated in South Africa. Here, although still at the fringe only of this fascinating subject, we must bring our notice of Dr. Bews work to an end, preserving, however, the hope that it may be possible on a later occasion to follow him yet further in the exploration of the evolution of the vegetation of South Africa,

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[*] *Plant Forms and their Evolution in South Africa.* By J. W. Bews, D.Sc., Longman, Green and Co. 12/6 net.

Our Supplement Plate.—From among the many beautiful hybrid Cymbidiums raised at Westonbirt by Sir George Holford (gr. Mr. H. G. Alexander), it would be extremely difficult to select any one as being the most beautiful. Fortunately, this task is unnecessary, as there are hybrids of so many varied colours as to be sufficient to please all tastes, while everyone agrees that the flowers and spikes of these excellent garden plants possess beauty and grace exceeding those of many other Orchids. However, the subject of the Supplement Plate presented with this issue of *The Gardeners' Chronicle* has many claims to be considered as one of the finest of the Westonbirt successes; it is Cymbidium Flamingo var. roseum. C. Flamingo is the result of combining C. Merlin and C. Alexanderi; the var. roseum has large, shapely blooms, of a bright blush-rose shade, with a broad white lip on which there is a ruby-crimson band and dottings of the same colour. That this Orchid is a fine one is shown by the awards it has received *i.e.*, a First Class Certificate from the Royal Horticultural Society on March 10, 1925, and a Premier Diploma from the Orchid Club (Manchester) three days later. Only a portion of a spike is shown in our illustration.

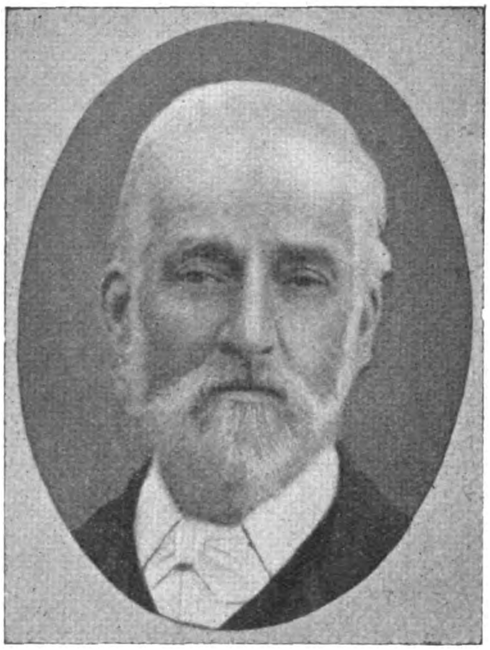
Gardeners' Royal Benevolent Institution.—The Duke of Portland has kindly consented to preside at the eighty-first Anniversary Festival Dinner in aid of the funds of The Gardeners' Royal Benevolent Institution on Thursday, June 10, at the Grocers' Hall, City.

National Memorial to Queen Alexandra.—Lord Lambourne, as President of the Royal Horticultural Society, is appealing to flower lovers throughout the country to show their love for Queen Alexandra in a practical way. Queen Alexandra was a great lover of flowers, and he suggests that a subscription, however small, should be sent from every horticultural society in England and Wales to the Memorial Fund, which will be devoted to the support and extension of the work of the Queen's Nurses, who attend the sick poor in their homes in all parts of the Kingdom. If every member of every horticultural society in city, town and village would send their secretary only twopence a very considerable sum would be raised for a most excellent cause. The Royal Horticultural Society has sent one hundred guineas to the treasurer of the Fund, 58, Victoria Street, London, S.W. Other subscriptions will be gratefully received there, or they may be paid to any of the local funds that are being opened in most of the principal cities and towns.

Gladiolus Show at Burton-on-Trent.—An exhibition of Gladioli will be held at Burton-on-Trent on August 11 and 12, in conjunction with the Staffordshire and Midland Counties Floral Fête. This show, organised by a small committee of enthusiasts, of which Mr. A. E. Amos, 10 Bergholt Road, Colchester, is the secretary, will provide an excellent opportunity for small as well as large growers of Gladioli to compete for generous cash prizes and for trophies, among which one offered by Messrs. Kelway and Son is for the best amateur's exhibit of varieties raised in Britain and catalogued by a British firm. The object of this class is to demonstrate the superiority of British-raised Gladioli.

Paisley Potato Sale.—The second of the series of seed and ware Potato sales for the season was conducted by Messrs. A. and J. Wilson on the 10th inst., when 360 tons of leading varieties were sold. Bidding throughout was brisk and the prices which are quoted show in most cases a considerable advance on those of the previous sales:—Arran Consul, £3 per cwt., but only a small quantity changed hands; Golden Wonder, £6 12s. 6d. per ton, and £5 to £5 15s.; Great Scot, £5; Arran Chief, £3 17s. 6d. to £4 15s.; British Queen, £3 7s. 6d. to £4 5s.; Kerr's Pink, £2 17s. 6d. to £4 7s. 6d.; Epicure (seconds), £3 10s.; King Edward, up to £6 7s. 6d.; Sharpe's Express, £3 12s. 6d.; Tinwald Perfection, £4 5s.; Rhoderick Dhu, £2 17s. 6d.; Sutton's Abundance, £4; and Bute Mary, up to £3 10s.

Mr. William Camp.—Mr. W. Camp will be known to many of our older readers as a successful fruit grower and exhibitor. He was engaged in several important nurseries and gardens, but his principal work was at Messrs. T. Rivers and Son's Nurseries, Sawbridgeworth. Mr. Camp is a native of Sawbridgeworth, and he commenced his professional career in the famous Sawbridgeworth nurseries under Mr. Thomas Rivers. During Mr. Camp's earlier career Mr. Rivers started the orchard-house system of fruit culture, as a result of the hard winters in 1859-1861, the frosts being so severe that every Peach and Nectarine tree in the nursery was killed. After a period of seven years at Sawbridgeworth, Mr. Camp obtained a situation as clerk in the famous nurseries of Messrs. J. Veitch and Sons, of Chelsea, but he only remained at Chelsea for two years, for he was persuaded by Mr. T. Rivers to again enter the service of his firm as chief clerk. Camp was only twenty-four years of age, and his position being assured, he married. He stayed ten years with Messrs. Rivers, but again went back to the Chelsea firm. Here he remained five years. At that time Messrs. Veitch's establishment was at the zenith of its fame, and people of all classes visited it. Prince Consort was a constant visitor, and such important personages as the late Queen Alexandra and the Crown Princess of Prussia, later the Empress Frederick, found Veitch's nursery a place of exceeding interest. Whilst at Chelsea, Mr. Camp learnt the great success that followed exhibiting, and when he was again invited by Mr. Francis Rivers to return to Sawbridgeworth as manager, he made exhibiting an important undertaking, although his employer was not at first in its favour. On the first occasion, when he staged an exhibit of pot fruit trees at the old Kensington Gardens, it was a great success, and he soon followed this by exhibiting at the Temple Show, and from that date onwards the firm exhibited at every Temple show, and when the Royal Horticultural Society decided to give a medal to the most meritorious group, it was won by Messrs. Rivers and Son with thirty Nectarine trees carrying in all some five hundred fruits. Exhibits at the Royal Botanic Gardens won equal success and Mr. Camp extended his exhibiting to Brighton, Crystal Palace, Liverpool, Manchester, Shrewsbury, Wolverhampton, York, and other important provincial shows. At the York show Messrs. T. Rivers and Son won the president's prize offered for the best group in the show, two years in succession. During his long service at Sawbridgeworth, Mr. Camp was called upon to visit estates and gardens in different parts of the country for the special purpose of advising on the varieties of fruits suitable for the district. Although this entailed a considerable amount of work in addition to his other duties, Mr. Camp's proud boast is that he never lost a single day's work from illness or any other cause. May good fortune in this matter follow him in his old age. Our readers will join us in the hope that he may be spared to enjoy his well-merited retirement at Sawbridgeworth for very many years to come.


MR. W. CAMP.

The Devil's Dyke.—The Devil's Dyke, near Brighton, will be offered for sale by public auction at the Old Ship Hotel, Brighton, on the 24th inst. The property is 190 acres in extent, and includes the Dyke Hotel and its attendant cottages and side shows. Most of the estate is open down land, and includes a portion of the ridge above the village of Saddlescombe and the bulk of the bold bastion which overlooks Poynings and commands wide and beautiful prospects over adjacent crests and the weald. One of the finest examples of an early British earthwork and ditch remaining in the south-east of England completely encircles the bastion. Four-fifths of the earthwork are included in the area to be offered by auction. The Dyke earthworks have been included under the English Monuments Act. Opinion is expressed that the estate should pass into public hands, and the Commons and Footpaths Preservation Society has intimated its readiness to take steps to raise the necessary purchase money if the owners of the property are prepared to accept a reasonable price for the estate.

Belgian Minister of Agriculture.—We learn from the Belgian horticultural press that M. Van de Vyvere has resigned his portfolio as Minister of Agriculture, to the great regret of his colleagues and of the Belgian nation in general. This was not the first time he had held the office, and he had little to learn about agricultural and horticultural affairs. He has quite lately had the sorrow of losing his wife, who died very suddenly while staying at the convent where their daughter was to become a nun. He is succeeded at the Ministry of Agriculture by M. le Comte de Liedekerke.

British Mycological Society.—The London Meeting of this Society on March 20 will take the form of a visit to Lister Institute. Members will meet at the Lister Institute at 11 a.m.; the nearest station, is Sloane Square Underground The Lister Institute is in Chelsea Gardens, which is reached by proceeding along lower Sloane Street to the Embankment. A meeting of the Sub-committee for Plant Pathology will be held in the afternoon at 2.15 p.m., at the rooms of the Linnean Society.

Covent Garden Market.—Suggestions have often been made in recent years for the removal of Covent Garden Market to a larger site, generally from disinterested persons, but the proposal made by the Beecham Estates Company to transfer the market to the site of the Foundling Hospital, Bloomsbury, is a more serious proposition. The present market occupies an area of some 5¾ acres, and the new site will afford a space of some 8¾ acres. A Bill will be introduced to Parliament so soon as the preliminaries are settled and if powers are granted and the Company decides on removal, it is considered that the change will be effected in about twelve months time. A meeting of the Directors of the Beecham Estates, Ltd., who are owners of Covent Garden Market, and representatives of the Covent Garden Tenants' Association, was held on the 11th inst. and the matter was discussed. The Directors definitely announced their decision to apply for powers to move the Market to the site of the Foundling Hospital, and the scheme was described by Sir Arthur du Cros, who claimed that it was their aim to create one of the world's best markets and one fully worthy of the capital city of the Empire. He stated that the present market would be released for future development, and with new streets the congestion of traffic which existed there at present and in the Strand and adjoining thoroughfares would be greatly relieved. It would permit of a street widening scheme extending from the north of Trafalgar Square to Aldwych, and taking in Chandos Street, Maiden Lane and Tavistock Street, thus making a new Strand running parallel with the present Strand. The new scheme apparently does not meet with the approval of the market tenants, for at a meeting of the Covent Garden Tenants' Association held on the 16th inst., a resolution was passed stating that the removal of the market would not be in the interests of all concerned, and that the tenants would oppose the scheme. The new site would be more congested than the old, the secretary said, because only 8½ acres were available, whereas the present market, including the adjoining premises of tenants, occupied more than ten acres.

International Botanical Congress, London, 1930.—The British botanists who met in the rooms of the Linnean Society of London on March 10, 1926, resolved to send an invitation to the members of the Fourth International Botanical Congress (Congress of Plant Sciences) meeting at Ithaca, New York, U.S.A., in August, 1926, to meet for the Fifth International Botanical Congress in London, in 1930.

Amateur Flower Show.—The Royal Horticultural Society has issued the schedule of classes for the Amateur Flower Show to be held at Vincent Square on Tuesday, June 22. Eighty-two classes have been arranged, grouped in three divisions; the first division is open to all amateurs, the second only to amateurs whose average garden wage-bill does not exceed £4 a week, while the third division is open only to those who employ no gardener, although occasional employment of outside assistance for heavy work, such as digging or trenching, will not prevent an amateur from competing in this section. The schedule may be obtained free on application to the Secretary, Royal Horticultural Society, Vincent Square, S.W.1. We hope to refer to certain classes in a succeeding issue.

An Electro-Negative Spade!—In the course of a lecture on "Investigations in Agricultural Science at Rothamsted,"[*] Sir John Russell referred to experiments which are being made at the Research Station into the dynamics of soil cultivation. As every gardener on heavy land knows, a pail of water is an almost indispensable adjunct to the digging of stiff clay land. For water is the best of all lubricants for clayey and metal surfaces. It is not, therefore, surprising to learn that the tests made at Rothamsted have shown that what is true of the spade is no less true of the ploughshare—if it can be kept wet it cleaves the heavy soil the more readily. Now clay is a colloid and like members of its class, each of its particles bears an electric charge—in this case an electro-negative charge. In accordance with this property, clay will part with some of its water if an electro-negatively charged plate be brought into contact with it. Why, therefore, should not some ingenious person devise an electro-negative spade and so lighten the arduous work of the digger of heavy clay soils?

Modern Views on Soil Problems.—Professor N. M. Comber, D.Sc., of the Leeds University, will deliver a lecture on "Modern Views of Soil Problems" on Wednesday, March 24, at 3 p.m. The lecture will be given either at the offices of the Chamber of Horticulture, 18, Bedford Square, London, W.C. 2. or at the Y.M.C.A. Building adjacent to Tottenham Court Road Tube Station. The *venue* will be determined by the number of people who *notify* the Secretary of the Chamber of Horticulture of their intention to be present. Admission to the lecture is free of charge. Those proposing to attend will receive notice of the exact place of meeting.

Appointments for the Ensuing Week.—Tuesday, March 23: Royal Horticultural Society's Committees meet (two days); Newcastle Horticultural Society's meeting and lecture. Wednesday, March 24: Wimbledon Gardeners' Society's meeting. Thursday, March 25: Paisley Florists' Society's meeting. Friday, March 26: Association of Economic Biologists meet. Saturday, March 27: Glenfield and Kennedy, Ltd., Welfare Association's Horticultural Show.

"Gardener's Chronicle" Seventy-five Years Ago.—*National Floricultural Society.*—Notice is hereby given that a general meeting will be held on Thursday next, the 27th inst., at the Society's rooms, 21, Regent Street, London, to receive nominations; for the election of members; for the choice of officers; for the confirmation of rules; and on other business. Chair to be taken at two o'clock p.m. precisely. The first exhibition of seedlings, etc., will take place on Thursday, April 3, at two o'clock. The want of a superior tribunal, to which all seedling florists' flowers and hybrids should be submitted previously to being sent before the public, has for some time been felt; and it is proposed that the leading nurserymen and florists do organise a Society in London, where all florists' flowers may be sent for the opinion of competent judges. That such an ordeal is absolutely necessary is continually shown by the number of florists' flowers that ought not to have been sold as first-rate varieties; this in a measure is owing to many of the introductions being certified as first-class seedlings by censors who may have but a limited knowledge of the varieties already in cultivation. A society so constituted as to lessen or remove so great a tax on the lovers of flowers should be universally supported by nurserymen, florists and amateurs; as the fact cannot be doubted that, in affording opportunities for the examination of seedlings before known and acknowledged authorities, the true interests of floriculture will be permanently promoted. Several eminent nurserymen, florists and amateurs, both in London and the country, have urged the necessity for such a step and wish to see a general society formed, which shall, by its strictness and impartiality, be stamped as a necessary ordeal through which all seedlings should pass, and have promised to give it their support. Various suggestions have been offered. One extract will convey the general tone:—"Let the proposed society be totally free from all partiality, it must be independent and honest; and to be useful, it must have the confidence of the public. Censors should be fixed and their names published; in short, let it be that which *we all desire*, a tribunal to test new florists' flowers and hybrids. Such will be liberally supported." To those parties engaged in the pleasurable pursuit of raising seedlings, the society must prove invaluable. To the dealer such a tribunal will be of the utmost importance, relieving him of much responsibility and constant anxiety. To the purchasers of new plants such a test will not only prove beneficial in a pecuniary view, but afford some security that the novelties annually offered possess at least claim to merit. John Edwards, Hon. Secretary, 21, Regent Street, London, March 1, 1851. *Gard. Chron., March 22, 1851.*

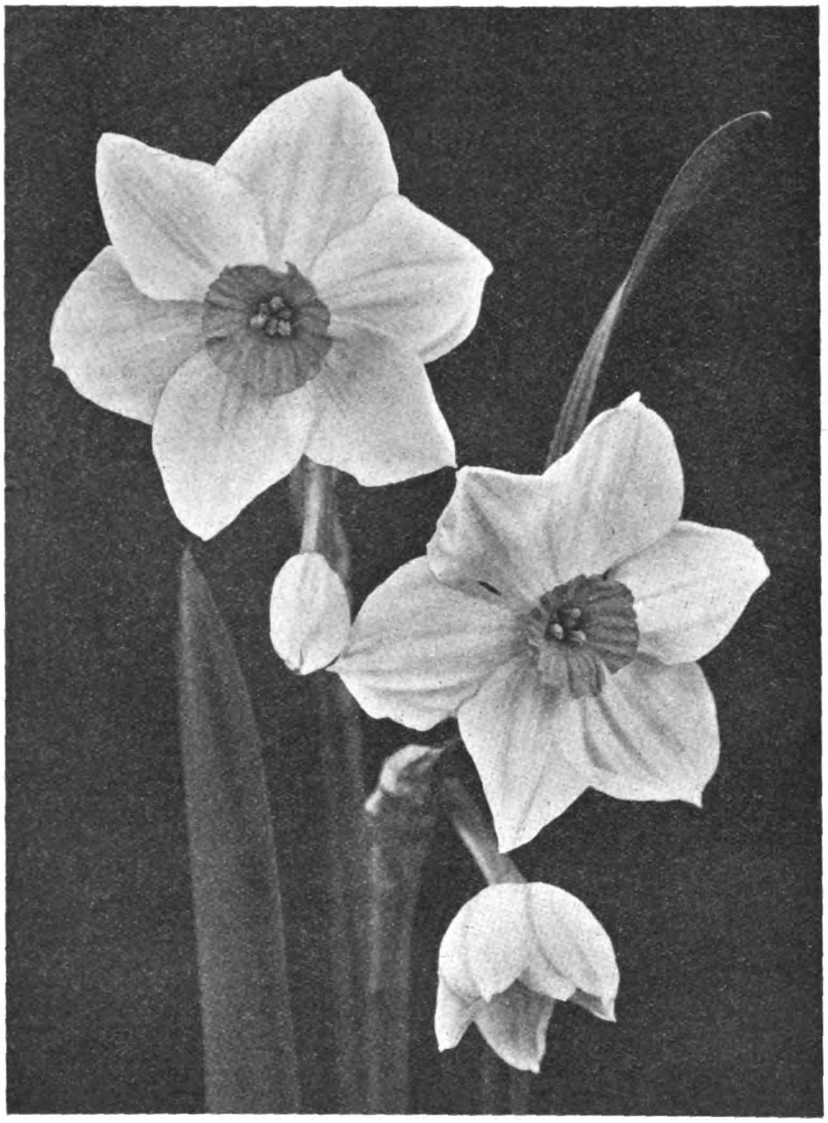


FIG. 99.—NARCISSUS MEDUSA.

R.H.S. First Class Certificate, March 2. Flowers white, with orange cup. Shown by Mr. P. D. Williams (see p. 201.)

Publications Received.—*Experiments with Potatos*, 1925, University College of North Wales, Bangor. *Seed Potatos*, by J. G. Murray, Lindsey County Council Education Committee, 286, High Street, Lincoln.

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[*] *Journal of the Royal Society of Arts*, LXXIV. March 5, 1926.

The Week's Work.

THE ORCHID HOUSES.

By J. COLLIER, Gardener to SIR JEREMIAH COLMAN, Bart., Gatton Park, Reigate, Surrey.

Thunia.—Towards the end of the present month it will be necessary to re-pot Thunias. The best results are obtained by attending to them in this respect annually. The ordinary flower pot is a suitable receptacle. This should be filled one-fourth its depth with materials for drainage. A moderately rich, retentive rooting-medium is required, and it may consist of a mixture of rich fibrous loam, partially-decayed Oak leaves and Osmunda-fibre in equal proportions, lightened with a sprinkling of crushed crocks and coarse silver sand. The plants should be shaken free of the old compost and the dead roots shortened to within an inch or so of the base of the stems. Grade them so that when the plants are made up afresh the height of the pseudo-bulbs will be uniform. The most convenient method of growing Thunias is to place six or seven of the stoutest stems together in a seven-inch pot, and so on, according to their size. This method is preferable to potting them singly, as the effect is more pleasing when the plants are in bloom, and it economises space. Place the base of the stems on the compost which should be about half-an-inch below the rim of the pot, so as to afford space for watering. The soil should be pressed firmly into the receptacle and each stem should be tied to a stout stake to hold it firmly.

Treatment after Repotting.—Thunias should be grown in the lightest position possible in the warmest house. For a week or two after re-potting water the roots sparingly, but afterwards the amount of moisture should be increased and water supplemented occasionally by liquid cow manure. The foliage should be syringed frequently, taking care to wet the undersides of the leaves, in order to ward off attacks of red-spider. Thunias complete their growths in a comparatively short time, and for this reason every encouragement should be given them to form strong, firm pseudo-bulbs.

THE KITCHEN GARDEN.

By F. STREETER, Gardener to LORD LECONFIELD, Petworth Park, Petworth, Sussex.

Seakale.—By annual propagation a very large supply of Seakale may be obtained from a comparatively small plot of ground. Plant the sets in well-trenched, heavily-manured ground, so soon as it is dry enough to work without the need of boards to walk upon. The sets, having been hardened as recommended in an earlier calendar, should be planted one foot apart in rows eighteen inches asunder. Use a dibber for planting and make certain that the set rests on the bottom of the hole. Place a ring of fine cinders around the collar of the set as a deterrent to slugs, etc. Growth will start quickly, and the shoots that develop should be restricted to one on each plant. Keep the ground clean by hoeing. Continue to introduce successional batches of roots in the forcing-house as required.

Marrows.—Marrows are greatly appreciated very early in the season, and where sufficient glass is at command it is advisable to grow an early supply. Sow the seeds singly in three-inch pots in a sandy compost, and raise the seedlings in a temperature of 60°, not more. So soon as the seed-leaves are well above the soil place the plants on a shelf near the roof-glass and admit air to the house on all favourable occasions, guarding carefully against cold draughts, otherwise mildew will quickly appear; this disease may be checked by dusting the foliage with flowers of sulphur. When well-rooted, transfer the plants to six-inch pots, using a stronger compost than before. Stake each plant singly. The smaller varieties are superior to the long varieties for this purpose; a good strain of Moore's Cream, Perfection, Tender and True, or Improved Custard may be chosen.

Potatos.—The earliest crop of Potatos for outside should be planted on a warm south border. The ground having been well-trenched during the winter should now be dressed with lime and wood-ash. Take out a trench two feet six inches between the rows and plant the tubers about eighteen inches apart. Cover the sets with old potting soil, old Mushroom bed manure or leaf-mould, which will ensure them making quick growth and the subsequent tubers coming out clean and of good shape. Strongly-sprouted tubers of the very earliest varieties with one good shoot an inch long should be selected for planting

THE FLOWER GARDEN.

By F. C. PUDDLE, Gardener to LORD ABERCONWAY, Bodnant, Taly-Cafn, North Wales.

Half-Hardy Annuals.—The main sowing of half-hardy annuals should now be made in a moderately warm house or frame. Sowing too thickly and growing the plants in an excessively high temperature are the chief causes of failure to secure sturdy plants. Dianthuses, Asters, Stocks, Salpiglossis, Cosmeas, Linums, Phlox Drummondii, Anagallis, Alonsoas, Diascea Barberae, African and French Marigolds, and Dimorphothecas may be sown in boxes of light soil, and so soon as the seedlings are large enough they should be pricked out in frames. Where large quantities of annuals are grown, the seeds may be sown in frames on beds of soil arranged near the lights. This system has much to recommend it, for, provided the seeds are sown thinly, the seedlings will suffer no harm if their transplanting is delayed through stress of other work, and the plants enjoy a more even condition of moisture at their roots. Nemesias should not be sown before the middle of April if they are required to flower simultaneously with the other annuals.

Waterside Plants.—If the old foliage of ornamental reeds, grasses, and other plants of the waterside, has been allowed to remain on the plants for the winter, it should be removed forthwith, as new growth is commencing. Any damage which may have been caused by winter floods should be made good, and any necessary dividing and planting completed. The selection of reeds and grasses requires discrimination, as some kinds spread so rapidly that they become a nuisance; amongst the worst offenders are Glycerias, Hippuris vulgaris and Sparganium ramosum. A selection of plants for moist situations at the waterside includes Sagittaria sagittifolia, Butomus umbellatus, Menyanthes trifoliata, Astilbes in variety, Trollius, Lysimachia vulgaris, Lythrum Salicaria rosea, Primula rosea, P. japonica, P. helodoxa, P. Smithiana, P. pulverulenta and P. sikkimensis. Iris Kaempferi should be given a sunny situation, and, if possible, a position where the crowns will be well out of the water, but the roots may reach it. Iris siberica will succeed in either sun or partial shade. There are other plants which, although not actually requiring a moist situation, associate well with the scenery of the water side, and some are useful for furnishing the drier banks of ornamental water. These include Phormium tenax, Libertia ixioides, Bamboos in variety, Senecio clivorum, S. tanguticus and S. Wilsonianus; Kniphofias, Hemerocallis, Eulalia japonica, Saxifraga peltata and Funkias.

Gladioli.—The many superb varieties of this beautiful genus which have been introduced during recent years cover so wide a range of colour that suitable varieties may be found for inclusion in most schemes of flower gardening. The corms may now be planted from six inches to nine inches apart and about five inches deep. The distance apart should vary according to the size of the group. Corms which are required for summer-bedding may be potted and the pots plunged in ashes in a sheltered place until the beds are available. A combination of Antirrhinums and Gladioli makes a very effective bedding scheme.

FRUITS UNDER GLASS.

By T. PATEMAN, Gardener to SIR CHARLES NALL-CAIN, Brocket Hall, Hertfordshire.

Figs.—To provide a succession of ripe Figs the second house may be closed forthwith; this will allow time for the trees to produce and ripen a second crop of fruit, for by closing the house at this season of the year the trees will soon be in active growth, and should produce ripe Figs between the time the early house produces its first and second crops. If the border is moderately moist much water will not be needed until the trees are in active growth, but when in need of moisture it should be supplied liberally and in a tepid state. A night temperature of 50° will suffice in the early stages of forcing, with a corresponding rise in the temperature by day. The house may be closed early in the afternoons and the fullest use should be made of solar warmth. Syringe the trees at the time of closing the house, but during dull, sunless weather guard against an excess of atmospheric moisture, as Figs dislike a steamy atmosphere when in active growth. Trees growing in borders in a cold house for producing a late crop should be retarded in growth for so long as possible. The border will dry out very quickly, especially when the ventilators are open practically night and day to allow the air to circulate freely, therefore the watering of the border should receive careful attention.

Pot-grown Orchard-house Trees.—Trees growing in pots in a cold orchard house will now be in full flower, and to ensure the fruits setting freely the trees should be treated with every possible care. Carefully pollenate the blossoms by means of a rabbit's tail, after which the trees should be smartly shaken to ensure the distribution of the pollen. When pollenating the blooms on Pear trees it will be advisable to collect pollen from varieties that produce it freely; the variety Doyenné du Comice is practically sterile to its own pollen. Apples should be treated in the same way as advised for Pears. The atmosphere of the house should be kept drier at this stage, and a free circulation of air maintained during the day time whilst the trees are in flower.

Strawberries.—Introduce further batches of these plants to the forcing house as required to meet the demand of the establishment. Those with berries nearing ripeness should be watered sparingly or the fruits may become watery and lack flavour.

HARDY FRUIT GARDEN.

By W. AUTON, Gardener to VISCOUNT ELVEDEN, Pyrford Court, Woking, Surrey.

Alpine Strawberries.—Although this type of Strawberry is not grown nearly so extensively in this country as on the continent, it makes a very valuable addition to dessert fruits in late summer, and is of the easiest possible cultivation. By removing the early trusses of flowers fruiting may be retarded so as to follow the maincrop Strawberries and thus lengthen the season. The best way to renew the stock is to sow seeds annually, and the present is a good time to make a sowing. The first runners from the seedling plants may produce vigorous progeny, but generally, stock raised from runners does not bear nearly such good crops of fruit as seedling plants. Sow the seeds thinly in shallow pans; they will germinate quickly in gentle warmth and a moist atmosphere. So soon as the seedlings are large enough to handle, prick them off into boxes, grow them on in a genial temperature until well established, when they may be transferred to a cold frame and gradually prepared for planting outside.

Strawberries.—Autumn-planted beds which are intended for supplying future stock and are not being cropped this year should have the surface soil constantly stirred to promote strong and robust growth for the production of early runners. If late runners were taken in autumn and have been wintered in nursery rows they should now be planted in deeply-worked and well-enriched soil. A distance of from two feet to two-and-a-half feet should be allowed between the rows, according to the vigour of the varieties being planted, giving the plants a space of from fifteen to eighteen inches apart in the rows. A catch-crop may be grown in the spaces between the rows the first season, but this should be restricted to quick-growing crops of moderate size so that there will be no danger of the Strawberry plants being shaded at any time.

Pollenation.—As with many other flowering trees and shrubs, fruit trees have a tendency to flower early this season, and Peaches and Nectarines on walls are already in bloom. The trees should be attended to daily at about mid-day to ensure distrubution of the pollen. A gentle tap of the branches is helpful, but if there is not an abundance of flowers it is wise to distribute the pollen from flower to flower by means of a piece of rabbit's fur tied to a stake of convenient length. Where stocks of bees are kept in the vicinity and it is seen that they are "working" the trees it may safely be left to them.

General Remarks.—Cuttings of Gooseberries and Currants or other small fruits should be well trodden to ensure consolidation of the soil at the present time when the development of roots is about to take place. Watch should be kept for re-awakening life in the insect world and steps taken to combat the spread of unwanted enemies. Although multiplication is not yet pronounced, occasional colonies of the eggs of various moths may be found quite early in the season, particularly where conditions are favourable, and the destruction of these early colonies greatly assists in the control of the pests.

PLANTS UNDER GLASS.

By John Coutts, Assistant Curator, Royal Botanic Gardens, Kew.

Celosias.—Seeds for raising the first batch of Celosias should be sown about the middle of March in a house with a temperature of 50° to 60°. When fit to handle the seedlings should be pricked off into pans or boxes of light, rich soil, or where small quantities are grown they may be put direct into small pots. When they have attained a height of about three inches, the seedlings should be transferred from the pans into small pots and subsequently repotted as they require it. Good specimens of the dwarf growing types of Celosia pyramidalis may be grown in five-inch pots, while the tall-growing strains, which attain a height of three feet, may be potted on into seven-inch or eight-inch pots. Sometime during May a sowing should be made to provide plants for a display during late summer and autumn. Celosias are very subject to attacks of Begonia mite and red spider, both of which must be guarded against.

Impatiens Balsamina. — Garden Balsams, although not so generally grown as in the past, are very useful for conservatory decoration, and by sowing successionally they may be had in flower over a long period. The first sowing should be made in an intermediate house sometime during March. Sow the seeds very thinly, as the seedlings very quickly become drawn if they are overcrowded. Transfer the seedlings to small pots, covering so much of the stem with soil as possible, as roots are produced from the stems. Balsams should be grown in a light, rich compost, and need feeding when in full growth. The best specimens are produced by cool cultivation, for if grown in an excess of fire-heat they will be weak and weedy.

Impatiens Oliveri.—It is surprising that this beautiful species is not more generally grown for conservatory decoration; it is easily propagated at any time by means of cuttings, and, grown in six-inch or seven-inch pots, is very useful for furnishing the plant stages. If potted on in large pots or tubs it makes specimens six feet or seven feet high and as much through, and produces its beautiful Miltonia-like flowers more or less all the year round.

Impatiens Holstii, I. Sultanii and I. Hawkeri.—These Balsams are also very useful for the greenhouse and are easily raised from seeds or cuttings; a batch of seedlings may include some improved varieties, which, if desired may be increased by means of cuttings. They grow readily in an ordinary greenhouse. I. Hawkeri requires intermediate or stove treatment. They are all subject to attacks of Begonia mite, which must be guarded against.

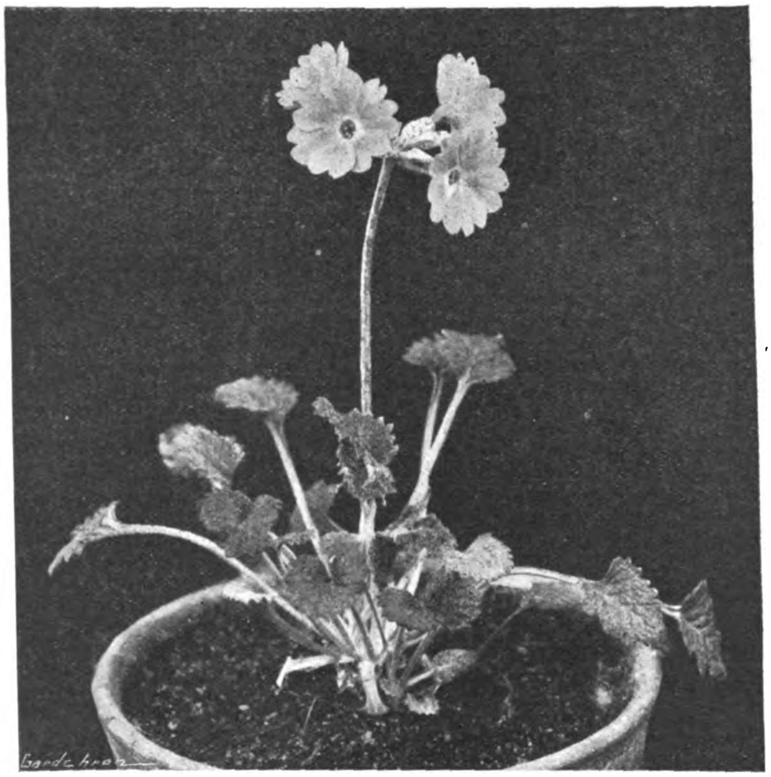

FIG. 100.—PRIMULA BAILEYANA.
R.H.S. Award of Merit, March 9. Flowers soft blue.
Shown by Lady Aberconway. (see p. 200).

FOR NORTHERN GARDENERS.

By A. T. Harrison, Gardener to the Marquis of Ailsa, Culzean Castle, Maybole, Ayrshire.

Peas and Beans.—The first favourable opportunity should be taken when the ground is in a working condition to make a fairly generous sowing of both Peas and Broad Beans, if the latter were not sown during November. The ground intended for early Peas should have been well-prepared and manured some time previously, and will now require only the addition of some wood ash, or, failing that, a dressing of superphosphate to be worked lightly into the surface. Do not tread heavy soil when it is wet, but walk along the drills on boards if necessary, covering the seeds lightly with a rake. It is advisable to make a thicker sowing of early Peas than is usually recommended, and also to place a few well-baited mouse traps alongside the rows, as mice soon discover the seeds, and if not hindered do much damage in a very short time. A round-seeded variety of Pea should be chosen, such as Pilot, which is one of the best for early cropping out-of-doors.

Spring Cabbages.—Cabbages planted last September are growing rapidly and will be greatly benefited by an application of sulphate of ammonia, but care must be taken that the chemical does not touch the foliage. Hoe the ground deeply between the rows, and if in exposed or wind-swept positions, draw some of the loose soil to the stems of the plants and thus help them to withstand displacement by winds. Further plantations should be made on well-prepared soil to maintain a succession of this useful vegetable. The plants having been raised from seeds sown last August, and having withstood the winter in the seed-bed, should now be fine, sturdy specimens with plenty of fibrous roots.

Fuchsias.—Where specimen plants have been kept on the dry side since the autumn they should now be pruned and top-dressed, or, if necessary, repotted, using a mixture of good loam, leaf-mould and dried cow manure crushed and sifted. The growing of specimen Fuchsias is not commonly practised now-a-days, but there is no doubt that well-grown plants, eight feet to nine feet high and well-furnished from the top of the pot with flowers and foliage are much admired and much to be preferred to the meagre specimens often met with to-day. The plants require ample water in the growing season, and frequent applications of liquid manure to maintain them in a healthy and vigorous condition.

Propagation of Dahlias, etc.—The old roots of Dahlias which were introduced to heat during February are sending up plenty of young growths which should be taken off with a sharp knife and inserted either singly in thumb pots or in boxes of sandy soil and placed in a propagating case furnished with bottom heat. Dahlia cuttings root very quickly, and if potted on so soon as they are rooted make the best plants for furnishing beds and borders from June onwards. Salvia patens may be propagated in the same way; it makes a useful subject where blue flowers are in demand. During the past five or six years this Salvia has been left in the ground all the winter here, and so far, it has never failed to send up strong shoots in the spring, making a grand display during the summer, many of the plants measuring nearly a yard across.

INDOOR PLANTS.

MEDINILLA MAGNIFICA.

OLD plants of Medinilla magnifica usually flower freely each season. The pendulous racemes are borne at the truncate apices of the rigid branchlets, and also spring at random from the old, woody stems. It is a dense-growing, evergreen shrub, which, branching dichotomously, makes a shapely specimen with a little training. There is a variety of M. magnifica, upright in habit, branching but sparsely, with wider internodes and much longer and looser inflorescences than those of the type.

A high temperature and a moist atmosphere during the growing season are necessary for the successful cultivation of this imposing plant. It should be removed to a warm greenhouse when the growths are fully developed.

Cuttings may be rooted over strong bottom heat. It is a slow-growing subject, and some years elapse before the plants reach specimen size. The compost in which it is grown should consist of fibrous loam and peat, mixed with charcoal and coarse grit. Old, established plants are greatly benefited by occasional applications of weak liquid manure during the growing period. *Fred W. Jeffery.*

EUPHORBIA FULGENS.

THIS beautiful winter-flowering plant should be propagated by means of cuttings made of the young, lateral shoots when they are about three inches long. The cuttings are best inserted singly in small pots containing sandy soil, afterwards plunging them in a warm propagating case. The slender stems may also be rooted, cutting them into lengths of about three to four inches.

This plant requires very careful watering at all times as it is very apt to lose its bottom leaves. It may be grown very successfully on a raised bed in a low pit, training the slender shoots to wires under the roof-glass; grown in this way fine, long sprays are available for cutting purposes. After plants grown in this way have flowered they should be cut hard back.

LINDENBERGIA GRANDIFLORA.

THIS useful, yellow-flowered exotic may be had in bloom from autumn through winter and spring.

The plant is easily propagated by means of cuttings inserted at this time, and as it is nearly hardy, requires perfectly cool treatment at all times. The roots should be somewhat restricted or the plant will not flower freely. It is subject to attacks of white fly which must be guarded against.

PAULLINIA THALICTRIFOLIA.

THIS stove plant has elegant foliage and is very useful for decorative purposes. It is easily propagated by means of cuttings which root readily in a warm propagating case. The slender stems may be trained to neat stakes, or they may be trained to wires under the roof-glass. *J. Coutts.*

GESNERAS.

GESNERAS are well worthy of attention because of their usefulness for winter decoration. They are comparatively easy to manage, and when well-grown are exceedingly beautiful. They require the temperature of a stove for their successful cultivation, but although they delight in abundance of heat and moisture when making their growth, they are hardy enough in constitution to admit of their being used for conservatory decoration when in flower, provided they are started sufficiently early to flower in August.

Gesneras thrive in a light, rather rich compost, which, while sufficiently light to allow the fibrous roots to extend freely in every direction, contains ample nutritive matter to support vigorous growth. A compost made up of two parts good fibrous loam, one part fibrous peat and one part decayed manure, with a sprinkling of sharp sand, suits them admirably, and if a little fine charcoal is added it materially assists in keeping the compost in a porous state.

The manner in which the plants are to be grown depends on the nature of the services required from them. Single specimens in five-inch or six-inch pots will be found of great service for the dinner table or decorative purposes generally, but for producing a striking effect in the conservatory or stove, larger specimens in eight-inch or ten-inch pots will be found of the most service. Some cultivators put the plants in the pots in which they are to flower when potting them in the spring, but from close observation, I am convinced that it is much better to start them in small pots, which will admit of them being shifted into others two sizes larger when about half-grown. When large pots are used at first the soil is apt to acquire a certain degree of sourness before the roots have taken full possession of it, and growth is consequently unsatisfactory.

The number of roots required for each pot varies from a single root for a forty-eight sized pot to eight or ten for a ten-inch pot. They may be laid on the soil and covered with about half-an-inch of the finer portion of the compost, or, if inserted with the aid of a blunt dibber, they should be placed with the small end upwards, which should be just covered.

After they are potted the plants should be removed to the stove or forcing house, in the moist atmosphere of which they will require little attention for the first few weeks. So soon as the young plants begin to make growth place them moderately near the roof-glass, or at least in a light position where they will not be drawn up in a weakly manner. When growth has become active and the roots have reached the side of the pots transfer them to their flowering pots and grow them on under similar conditions. They require an abundance of water once the pots are full of roots and enjoy a liberal amount of atmospheric moisture, but it is not prudent to syringe them overhead owing to their downy leaves.

When the beauty of the flowers is past the supply of water should be withheld gradually, and so soon as the leaves and stems die down the pots may be stacked away on their sides underneath the stage of the stove or greenhouse. The tubers may be kept in good condition by leaving them in the old soil until wanted again in the spring, but if the room cannot be spared for this manner of wintering them and it is necessary to shake them out, they should be stored in paper bags in a moderately warm, dry cupboard.

Propagation is effected by the natural increase in tubers, but if it is desired to increase the stock quickly leaf-cuttings may be struck during the season of growth. Leaf-cuttings struck during the summer produce fair-sized tubers by the autumn. If these are managed in exactly the same manner as recommended for old tubers they will produce plants in the following year equal in every respect to those obtained from old tubers. *A. P. C.*

DOMBEYAS.

ON page 53 you give a description and on page 63 a figure of a very fine unknown Dombeya imported from Madeira. It is certainly impossible to name a plant from such a figure alone, but I would suggest a comparison between this new plant from Madeira with the Dombeya Cayeuxii mentioned by me on page 29. There is a coloured figure and a full description of it by the late Ed. André in *Revue Horticole*, 1897, p. 544. Of course, the newcomer may be something else, but from the *Gard. Chron.* illustration and description I am greatly inclined to believe that it is Dombeya Cayeuxii. It seems to agree in all details.

D. Cayeuxii was first raised in the Botanical Garden at Lisbon by Mr. Cayeux as a hybrid between D. Wallichii, from Madagascar, and D. Mastersii, from Abyssinia, in 1895-96. It combines the characters of both parents in a happy way. It possesses the imposing stature and foliage and the long, drooping, bell-shaped inflorescence of D. Wallichii, also the delicate colouring of the flowers and the greater hardiness of D. Mastersii, which is a much smaller-leafed and flowered plant. I am rather surprised that nearly thirty years elapsed before this plant—if it is the same—came to England. I myself became acquainted with it about fifteen years after its appearance. I believed at that time that such a gorgeous flowering shrub would soon find a large distribution. *Alwin Berger, Geneva, N.Y.*

[This note appears to confirm M. Cayeux's note which appeared in our issue of February 6.—EDS.]

ALPINE GARDEN.

THE BALEARIC SANDWORT.

ARENARIA balearica, the Balearic Sandwort, in many gardens gradually dwindles away, due to its being allowed to grow for too long without replanting. It is not likely to disappear if it has room to spread, and then it will cover a big space with its tiny leaves clinging closely to the stones or soil, and in its season spangled thickly with its lovely little white flowers, borne on short, slender stems rising but little above the close carpet of foliage. It should not be allowed too near choice little alpines, such as, say, Ramondias, about which it will ingratiate its creeping growths with the result that the other plants may be crowded out. I recollect a wall planted with Ramondias, in which Arenaria balearica had been introduced. The cool, moist conditions of this shady wall, which suited the Ramondias, were congenial also to the Sandwort, and the latter became so troublesome to the Ramondias that it had to be extirpated. It may be planted in spring.

CAMPANULA GARGANICA.

CAMPANULA garganica has many good points to commend it, and in sunny chinks of the rockwork or equally sunny slopes adorns many a rock garden with its pretty, heart-shaped, notched leaves and starry flowers. It is not too exacting in its requirements in respect to soil, and will be happy with the staple ordinarily supplied to rock plants—loam, with the addition of some leaf mould or peat, and sand with some grit added. It does not even appear to have any special liking for lime, nor does it object to this material in the soil. It is easily grown from seeds and is also freely propagated by division of large plants or by cuttings. It is so well-known as to require hardly any description.

It will probably be sufficient to state for the information of those who do not know the plant that C. garganica is of trailing habit, and that the heart-shaped leaves of the type are smooth and glossy, and the flowers, which are freely borne along the trailing branches, of a metallic blue. But there are numerous varieties, some of which may come from a packet of seeds, although the seedlings are generally fairly constant in their reproduction of the parent. One which I find more easily retained than the type, for which slugs seems to have a desire, is commonly called C. garganica hirsuta. This has its leaves covered with grey hairs, which appear to be a deterrent to slugs as these pests leave this form severely alone. The flowers are of a lovely soft blue, with white eye, and the plant has all the freedom of the typical C. garganica. White varieties of the plant exist and are highly prized by some. A variety often sold as C. Erinus is very attractive. *S. Arnott.*

ERODIUM CHAMAEDRYOIDES.

OF the many Erodiums suitable for planting in the rock garden E. chamaedryoides is one of the most charming and presents no difficulty whatever in its cultivation. It is, indeed, among the few choice species of its genus which are quite easy to grow, and, unlike most others it enjoys a fairly cool soil. I have grown it with great success on the margins of a bog and in partial shade.

This delightful plant comes from Corsica and the Balearic Islands; its one-inch tall mat of dark green, heart-shaped leaves dotted with milk-white, short-stemmed flowers, are familiar to most rock gardeners. The soil for this plant should be freely drained, fairly rich, and, as I have inferred, not too hot or dry.

The beautiful rose-pink form which appeared a few years ago is a lovely little plant in every respect, and an intermediate variety in pale blush is always worthy of a place in the rock garden. *J.*

MYOSOTIOIUM NOBILE.

The Chatham Island Forget-me-not, Myosotidium nobile, is a distinct and truly noble plant which has baffled the efforts of many to induce it to thrive in their gardens. To see it in good condition is sufficient to make one envious of those who are fortunate enough to have gardens in mild places, where, even with a little protection in winter, it may succeed.

The late Mr. Farrer considered this fine plant to be "the county flower of Cornwall to the exclusion of everything but the Daffodil, and a tender Rhododendron," and he dubbed it "a most respectable plant." His description hardly does it justice. Even if it did not flower it would be coveted by many for the sake of its large, broad, handsome, corrugated, glossy foliage of a good green. Here again, I must demur at Farrer's description of the plant as being "like a vast and glossy gross Funkia." Nor is he very happy in his criticism of the flowers. These are borne in large heads on stems about two feet high, and are blue with a whitish ring on the outside. At a distance they are certainly not effective, but the Myosotidium is a plant to linger over and admire at leisure. There is also a white variety, not superior, to my mind, to the typical blue one.

As stated above, M. nobile abounds in Cornwall, where it is recognised to be as happy as, if not happier than in its native island, and there are other seaside gardens where it assumes handsome dimensions and gives little trouble. I know of no plants in the open in Scotland except those at the wonderful garden of Mr. M'Douall, at Logan, Wigtownshire, and there it used to be, and probably is still, protected with straw in winter; the climate at Logan is of exceptional mildness. I cultivated it for some years in sandy soil in a seaside garden in the south-east of Kirkcudbrightshire, but could never succeed in flowering it, and, as the place was greatly exposed to storms, the leaves suffered badly during the fierce gales which swept the garden. A native of the sandy shores of Chatham Island, it evidently flourishes best in sand, but it must be remembered that there is frequently a considerable amount of moisture beneath the surface, and probably we cannot give it the conditions it absolutely desires. Perhaps Mr. Findlay, who had experience of M. nobile at Logan, may be able to cultivate it successfully at Wisley. Seeds are obtainable, and plants are procurable in pots from southern nurseries. By-the-way, shade is suggested by some growers. *S. Arnott.*

HARDY FLOWER BORDER.

LIBERTIA GRANDIFLORA.

All the Libertias suffer in popularity because of their lack of complete hardiness in cold gardens and many who have tried them have had reason to regret their attempts. I have grown all the Libertias is cultivation, or, at least, in commerce, and have come to the general conclusion that L. grandiflora is one of the best of them, so far as hardiness is concerned, but that L. ixioides runs it very closely in this respect. They all possess similar pretty white flowers and Iris-like foliage, which is one of the characteristics of the race.

As border plants they are highly pleasing, and L. grandiflora is quite good and free-flowering where it succeeds. I have seen it growing well in a garden considerably north of the Tay, in a comparatively cold district, and I am aware that L. grandiflora has also succeeded well near the sea considerably further north.

Those who wish to have a good white-flowered plant for the border to bloom in May and June, growing to a height of from two feet to three feet, may be recommended to try Libertia grandiflora. It loves a dry, well-drained soil and a sunny situation. Plants are easily obtained, and they may be transplanted so late in the spring as April, though I prefer to plant early in the autumn. *S.*

SISYRINCHIUM.

Sisyrinchium is a genus of very pretty, hardy, perennial, spring-flowering, Iridaceous plants, now in the zenith of their beauty. They have been flowering for some weeks past and are worthy of more general cultivation.

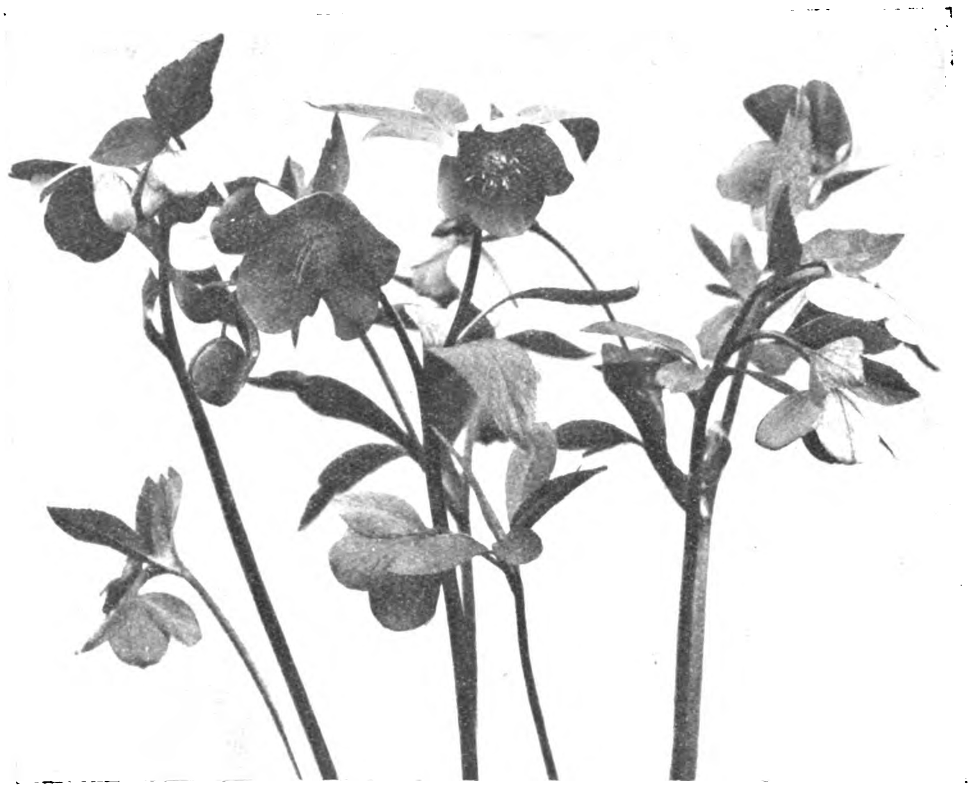

FIG. 101.—HELLEBORUS ORIENTALIS VAR. BLACK KNIGHT.

R.H.S. Award of Merit, March 9. Flowers smoky purple.
Shown by Messrs. Barr and Sons. (see p. 200).

Sisyrinchium grandiflorum, the purple Satin Flower, is exceedingly handsome, in its narrow, verdant-green, grass-like foliage, and slender inflorescences of pretty flowers. The wiry flower stems are from nine inches to twelve inches high, and bear drooping, bell-shaped umbels of translucent, rich purple flowers of the most delicate texture.

Sisyrinchium grandiflorum album has flowers of transparent whiteness, and is a charming companion to the type.

When planted in a fairly warm position, either on the rockery or border, in a deep, cool, sandy, peaty soil, these Sisyrinchiums will soon form attractive colonies and become well established. They resent frequent disturbance at the roots; when necessary, transplanting is best done in early autumn. *W. Logan.*

CAMPANULA LACTIFLORA CAERULEA.

This blue Campanula is one of the most beautiful members of the extensive genus Campanulaceae, indeed, it is one of the most decorative and showy of hardy herbaceous perennials for the flower border, having tall, stately, loose panicles of large, sky-blue flowers, which are in perfection from June to August.

If planted in a moderately rich, loamy soil, and not too much exposed to high winds, this Campanula will attain the height of from four feet to five feet, producing sturdy spikes of bloom in the greatest freedom. The plants may be stopped to almost any desired height if required for the middle row in the borders.

Another beautiful variety of C. lactiflora is alba magnifica, a pure white form, and remarkably effective, producing large, pyramidal spikes of milky-white flowers. It is easily raised from seeds.

TWO NOTEWORTHY PULMONARIAS.

Of the many Pulmonarias grown here from time to time two appear to me to stand out far beyond all others in distinctiveness and merit. One of these came under the name of P. azurea, Munstead Variety. This plant has flowers eight-and-a-half inches across, of a clear deep blue, and they show no purple whatever, not even in the opening buds or blossoms. The leaves, especially at this season, are blunter than those of Mawson's variety and others. They are also a paler green and have comparatively few hairs. When fully grown the foliage is very slightly spotted.

The other Lungwort I refer to is P. rubra, the flowers of which are a bright coral-red, and it is worthy of note that they open and die off in the same tint.

The leaves of this species are larger than those of any other member of the race known to me being up to about ten inches in length and half as broad when fully developed after the flowering season. They are then rough, hairy, dark green and very minutely speckled.

Well-grown groups of these two Lungworts are sufficiently striking in the early season as to rank amongst the best of plants that bloom in February and March. *A. T. Johnson, Rowen, Tal-y-Cafn, N. Wales.*

GARDEN NOTES FROM SOUTH-WEST SCOTLAND.

Last autumn I bought half-a-dozen bulbs of Allium Rosenbachianum, a species unknown to me. It is said to grow tall and produce purple or white flowers; but be the merit of these blooms what it may, I am amply indemnified for the cost of the bulbs by the beauty of their young foliage. Crown Imperials and Eremurus vie with each other in the boldness of their upward thrust through the soil in February; but this native of Bokhara far out-does them in early vigour, its broadly ovate leaves being already a foot high on this first of March, of a beautiful glaucous blue-green, suggesting sculpture in jade. The Allium family is a large one, about eighty species being enumerated in the Kew *Hand List of Monocotyledons*. Many of them are of no more than botanical interest, but there are several very attractive species which are not so often seen in private gardens as they deserve. Among the most attractive are A. narcissiflorum (syn. pedemontanum), with rosy-red flowers; A. subhirsutum, white; A. acuminatum, pink; A. karataviense, grey, with fine foliage; these all flower in May and June simultaneously with our native Garlic, A. ursinum, which must not be admitted to the flower garden by reason of its too powerful odour. In August and September A. Beesianum, with good blue flowers, and A. sphaerocephalum, with purple, are most desirable.

January is not far sped before Paeonia Cambessedessii pokes up brilliant scarlet noses which suffer no check even from hard frost. This is the more remarkable in a native of the Balearic Isles, whence Miss Geoghegan introduced it in 1896, and earned my lasting gratitude by bestowing some on me. In my opinion, it is the loveliest of all Paeonies, the plate in the *Botanical Magazine*, t. 8161, being a mere caricature of its delicate beauty. The upper surface of the leaves has a silvery sheen, the under-surface being of a deep brick-red, while the cup-shaped flowers are of softest pink with golden anthers. P. Cambessedessii is the earliest of all the family to flower, so far at least as known to me, usually beginning before the middle of April. In stature it seldom exceeds fifteen inches, whereas P. Mlokosewitschii, far the finest yellow Paeony, grows to double that height. Here again, the figure of the latter species in the *Botanical Magazine*, t. 8173, fails to give a just impression of the flower, whereof the corolla is of a clear sulphur hue, without a tinge of the green shade shown in the plate. Both these choice herbs are of easy culture, thriving in somewhat rich, but well-drained loam and preferring a position sheltered from scorching sunshine.

The uniform mildness of February endowed us with a wealth of bloom on early-flowering Rhododendrons. The colours of some species are so vehement that it requires discretion to be exercised in grouping them. To plant R. barbatum alongside of R. fulgens is to do injustice to both these flaming beauties. Better let the neighbour of each be something with flowers of cooler tint, such as R. oreodoxa, R. pachytrichum or some of the pink or white varieties of R. arboreum. R. lutescens, with sprays of palest sulphur blossom, seldom wins admiration when solitary or grouped by itself, but a charming effect results from placing it before a crimson R. Nobleanum or by flanking a mass of R. praecox with it. Like many other amateurs interested in this splendid family I have learned too late the mischief resulting from planting choice species of Rhododendron too near each other. The time comes when they invade each other, and the effect is sacrificed of perfect specimens of such grand species as R. arboreum, R. decorum, R. calophytum, R. Falconeri, etc. It is true that the root system of Rhododendrons admits of their being transplanted even when of great size; but that is a laborious process, and far the better way is to set each fine species at suitable distances from any other of similar merit, filling the interval with plants of less value, which can be rooted out as occasion requires.

The contents of the post bag just now remind one that a boom in Gladioli seems to be brewing and, as usual, people dispute about the correct pronunciation of the name. I regretted to read lately in a gardening journal a confident statement that the accent should be on the second syllable, and warning readers against placing it, as is often done, upon the third syllable. Both are equally incorrect in a scholarly sense. The name "Gladiolus" is Latin, a diminutive of *gladium*, a sword, and means "a little sword" in allusion to the shape of the plant's leaf. All four syllables are short, which necessarily throws the accent on the first of them. The word does not occur—it could not occur—in Latin poetry, which does not admit of four consecutive short syllables; but Pliny mentions Gladiolus as a companion of Hyacinths (Part i., Book xxi, Chap. ii), and in chapter 17 he recommends the bulbs as edible and giving a pleasant flavour to bread. *Herbert Maxwell, Monreith.*

IN A NEW ZEALAND GARDEN.

SEEDS AND SEEDLINGS.

Seed-saving has fascinated me for many years although seedlings have often been a failure. I can remember seed packets with alluring pictures, and seeds sown in high hope, often entirely without result, and in other cases with fulfilment far short of the expected beauty. I had so many disappointments that I lost confidence and was agreeably surprised to find any seedlings at all, but when I took to collecting seeds in the home garden I found they would grow if treated aright.

In those early days I had some successes that have surprised me since. I raised several dozen Hepaticas, a number of Celmisias, and a fine batch of Aquilegia glandulosa (or, as Farrer insists, A. jucunda), and also a large batch of Ranunculus Lyallii, but, alas! I lost all these last in the resting stage. I sometimes sigh for that Dunedin garden with its heavy clay subsoil and its mild climate with many mists. Crocuses, Snowdrops, Primroses, Auriculas, many Lilies, *e.g.*, L. speciosum, L. croceum, L. pardalinum, L. giganteum, etc., and native alpines flourished there exceedingly.

Here, at Taranaki, I have to import clay in tins, from miles away, when I wish to stiffen our light volcanic soil, and I have to supply water throughout the dry summer months or my Primula species would simply vanish.

Nowadays the chief items are Daffodils, Irises and Tulips. I have been crossing Daffodils with pollen of triandrus, calathinus and moschatus, but most of the seedlings are not at the flowering stage yet. Two good ones have flowered, however; one is the offspring of the poetaz Jaune à Merveille × Narcissus triandrus calathinus. Of two dozen seedlings only three showed the poetaz strain, the others were pure calathinus, but the three have true poetaz flowers, with perianth and cup of the same soft yellow and the cup twice as large as in the parent and not so flat. It is rather too late for our shows. The other is the result of N. triandrus pollen on N. odorus. One seedling out of ninety shows triandrus influence; the flower is a citron-coloured odorus with the cup enlarged, and of a lighter yellow than the perianth as in N. triandrus concolor.

This year, in a new garden, my Daffodils hardly set any seeds at all, but, fortunately, N. cyclamineus and N. minimus both set plenty of seeds. N. moschatus does badly here, and has probably died out this year; fortunately, I have a number of healthy seedlings of its crosses.

Of Irises I tried, I. Susiana pollen on such forms of I. pumila as were in flower; one survived the snails, and there was a fine, fat pod on a dwarf yellow, but the pod wilted and the seeds are not convincingly sound; they are sown, however, in pious hope of a resurrection. An Iris Douglasiana × I. tenax flowered, the flowers being of Douglasiana type with a reddish-lake colour; that has three or four pods set and promises results interesting from a Mendelian standpoint. There is one fat pod on I. fulva, fertilised with its own pollen, and lots of I. sibirica, I. flexuosa and I. orientalis and I. versicolor crosses.

I have some eighteen seedlings of the Iris unguicularis alba, pollenated by a large-flowered blue form. All have coloured flowers, some deeper in tone than their male parent, but, unfortunately, their seed-pods have always rotted before ripening owing to our heavy spring rains. This year I have the plants in a drier, warmer aspect, and hope to get seeds.

Among the Flag Irises there are a few promising pods. Shekinah × King and vice-versa, and aurea × Jacquiniana. There is an abundance of Primula seeds this year. I look forward to the result of P. Cockburniana × P. helodoxa.

Among the Tulips there are seedlings of an early yellow-ground × Tulipa Greigii; but there is one disappointment—a Parrot variety formed a good pod but there is not one solid seed in it.

Of Celmisias I have six seedling plants from a cross between C. verbascifolia and C. longifolia major. In leaf they are like neither parent but very similar to small forms of C. coriacea. One has flowered and seeded, and some sixty seeds are already sown—another case where Mendelian interest arises.

I have never yet seen a Japanese Cherry ripen seeds here; but neither ordinary Cherries, English Plums nor Apricots form fruits on our clay-free soil, though Japanese Plums, Peaches and Nectarines fruit well. There are of course, numerous other plants seeding—Lily-of-the-Valley, Erythroniums, shrubs of many kinds, etc., but the most astonishing is a capsule of Paeonia albiflora. I had the plant at least ten years and left it severely alone, but it would not flower. A year ago I moved it to this new garden; six months later it was removed by mistake to a friend's garden, and then brought back here. It has flowered for the first time and has its seed-pod well-formed.

Before closing, I would like to mention two cases which seem to substantiate the idea that crossing brings increased vigour. I once crossed Lilium auratum platyphyllum with pollen of typical L. auratum. I raised six hundred seedlings, all of great vigour. More recently I raised seedlings of Narcissus Bulbocodium citrinus crossed with pollen of N. B. conspicuus. The seedlings flowered in two years and were of extraordinary vigour, intermediate in flowering time between their parents but larger than either. *Wm. Thomson, Hawera, Taranaki, New Zealand.*

WOODLAND GARDEN.

DICENTRAS IN WOODLAND.

For the woodland garden, or for grouping between shrubs, where an easily-grown plant that will take care of itself is desired, Dicentra formosa and D. eximea are useful subjects.

The former I once saw growing in the forests of northern California, covering the ground much as our Wood Hyacinths do here, and I determined to try and naturalise it in my home garden so soon as circumstances permitted. This has, to a certain extent, been achieved. The plant spreads into large patches, if it does not seed, and the delicately-cut leafage, elegant of habit and of a glaucous green, is in itself very charming. The flower stalks arise erectly ten inches to fifteen inches above the leafage and terminate in pretty racemes of rosy-purple blossoms.

D. eximea is a native of more northern latitudes, its habitat extending into British Columbia, and, while bearing a general resemblance to the foregoing, it is, I think, an even more beautiful species. It has the same glaucous Fern-like foliage, often suffused with a purplish hue, and the hyacinthine flower heads are equally graceful and of a somewhat lighter colour. Both species are quite hardy and seem to grow freely in almost any soil and situation. *J.*

TREES AND SHRUBS.

GENISTA TINCTORIA FLORE PLENO.

If the typical Genista tinctoria cannot claim to be among the choicer of the dwarf members of the genus, the double-flowered form is in every respect an excellent little shrub. This delightful plant makes a dense mat of wiry, leafy twigs, usually not more than a few inches long, and breaks into blossom in early summer with a fine blaze of yellow. Not only is the colour richer than in the flowers of the typical species, but the blooms, being double, last considerably longer.

The rich, glossy green of the foliage makes a pleasing background for the flowers, and the leaves themselves are no small acquisition to a dry bank or arid rock garden ledge upon which the plant will flourish.

No place seems too hot and dry for this useful shrub, and it is one that claims a place in the best half-dozen dwarf Brooms.

The plant may be propagated from cuttings, but I see no reason why layering should not succeed, since one frequently finds the branches of the type plant rooted in the grass and herbage in which it grows. *J.*

RHODODENDRON PRAECOX.

This charming plant is amongst the best of the small-flowered early Rhododendrons, and although it frequently suffers because of its precociousness it is a gorgeous subject in seasons when its flowers open perfectly.

It is a cross between R. dauricum and R. ciliatum and flowers earlier than either parent; despite the comparative severity of the present winter it was in full flower at mid-February. This Rhododendron is of a semi-deciduous habit, and its rosy-purple flowers are produced with remarkable freedom, literally covering the plants with a sheet of colour. It is a slow-growing shrub and although perfectly hardy a position affording some shelter should be chosen for it, as, owing to the early date at which it opens its flowers, the latter are apt to become seared by frosts or biting winds. Plants comprising a group growing in a position in the Heath garden here for some fifteen years never fail to flower at this season. *W. Auton, Pyrford Court Gardens, Woking, Surrey.*

DOCTORING AN OLD TULIP TREE.

There are many rare and beautiful trees on The Grove Estate, Stanmore, Middlesex, but the largest and, in autumn at least, most ornamental, is a splendid specimen of Liriodendron Tulipifera, the Tulip Tree, which occupies a prominent position on the lawn directly in front of the dwelling house. It is of rather unusual dimensions, for the branches have a spread of nearly one-hundred feet, while the stem girth, at a yard from the ground, is twelve feet six inches. This tree, like many others of its kind, was found to be in a rather dangerous condition owing to decay having set in in some of the larger and heavier branches. This had so weakened three of these that it was decided to connect them with the main stem in such a manner that the chances of their being torn away during stormy weather were so far as possible, minimised. Iron bands, three inches wide, with suitable packing material, so as to avoid friction and give room for growth expansion were fixed at convenient places around the branches, and connected by light steel rods with the main stem higher up.

The diseased hollows and pockets were carefully cleaned out, and after becoming perfectly dry were painted with an antiseptic and filled with asphalte, which, on account of its elasticity and lasting properties, has been found preferable to cement where movement of the branches has to be contended with; this composition yields slightly with the movement of the branch, whereas cement is apt to crack and admit damp.

It is interesting that on several properties between Stanmore and St. Albans there are greater numbers and larger specimens of the Tulip Tree than in any other part of the London area with which I am acquainted. *A. D. Webster.*

ROSE GARDEN.

CONRAD F. MEYER.

I wish to draw special attention to this splendid Rose. It belongs to the Rugosa group or section of the great Rose family, the members of which are sometimes referred to as Japanese Roses. The subject of this note is exceedingly vigorous, furnished with glossy foliage and the most abominable of thorns. The flowers are large and full, of silvery-rose colour, very fragrant and of good form.

The Rugosa Roses are ideal for making a strong hedge, being quite hardy and adapted for growing in moist soils. Conrad F. Meyer is also excellent for pillars, as shown in the accompanying illustration (Fig. 102), under which treatment it will grow upwards of eight feet high. When grown in this way examples may be used to stand out conspicuously among mixed shrubs, the strong shoots and handsome blooms being easily seen. Isolated on a lawn, specimens are naturally better seen and perhaps more beautiful. This Rose is procurable also in standard form, but, in my opinion, it is too robust for such a purpose, its possibilities under this treatment being greatly reduced.

Little pruning should be practised at any time on this vigorous hybrid, and for clothing pillars the necessary pruning should be done to varying heights so as to secure a fairly even distribution of flowers over the whole plant. An occasional clearance of an old shoot or two will assist to this end. *C. Turner, Ampthill Park Gardens.*

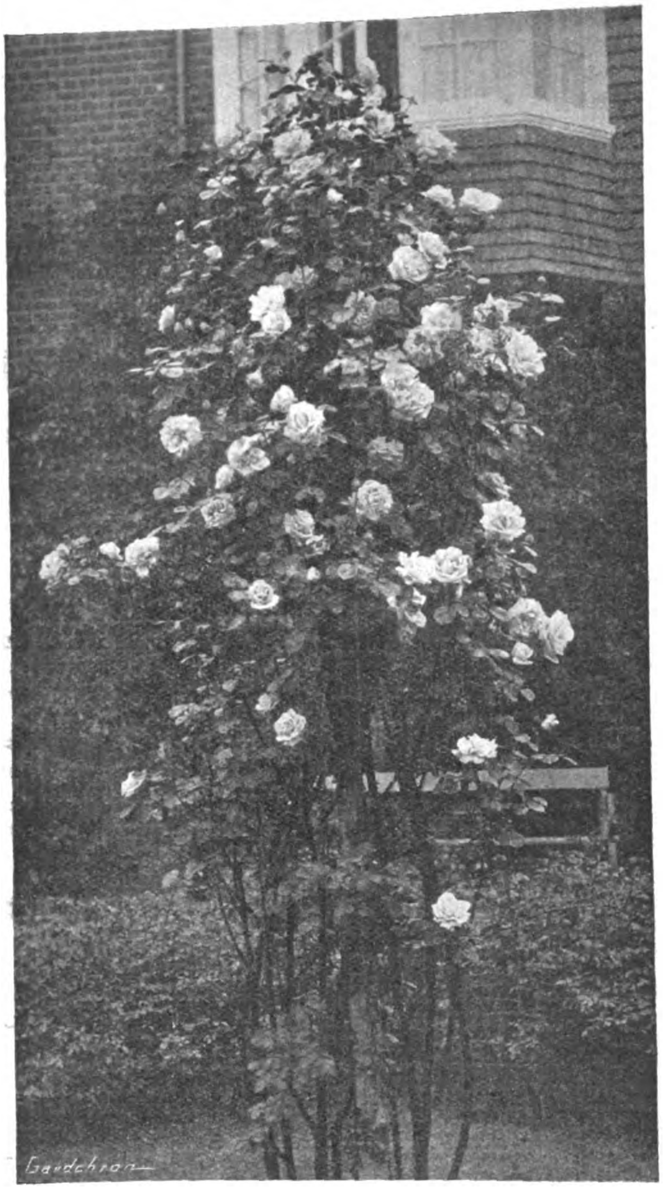

FIG. 102.—ROSE CONRAD F. MEYER.

PRUNING.

The best time for pruning Roses varies according to the locality in which they are grown. In the milder parts of the country Hybrid Perpetuals and Hybrid Teas may be pruned at the end of March, but in the colder districts the second week in April is usually the safer time.

The majority of climbing Roses will have had their old and superfluous growths removed in the autumn and little further pruning is necessary. With the exception of members of the Wichuraiana section, which usually develop plenty of basal shoots, it is good practice to cut one or two growths of most climbing and pillar Roses to the ground each spring to cause new leading growths to develop and keep the bases of the plants furnished.

The amount of pruning necessary for dwarf Roses depends both on the variety and on the individual growths. All dead, weak, and worn-out shoots should be removed, and the remaining ones cut back to from two to six eyes, according to their strength. The average number of buds which start into growth from the stronger shoots is three or four, and to leave the growths too long merely results in leggy plants.

Strong-growing varieties, such as Lady Waterlow, Frau Karl Druschki and Hugh Dickson flower more freely if the growths are left almost their full length and pegged to the soil. These strong varieties are useful for covering low walls, especially if their growths can be tied horizontally along the coping. *P.*

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SPARTINA IN FRANCE.

THE main interest of the Spartina question depends on the appearance in recent times of a particularly vigorous and large-growing species or form known as Spartina Townsendii. This plant was first detected in 1870, at Hythe, on Southampton Water, and was described by H. and J. Groves in 1880. S. Townsendii is remarkable for its capacity to occupy extensive sheets of soft, tidal mud, previously bare of fixed vegetation, except for Zostera, and to spread rapidly in such habitats until it forms continuous meadows occupying many miles of protected coast line. Its station is the higher levels of the mud flats just below high water mark. It tends to accumulate silt and in general to fix and consolidate the mud. Spreading from Southampton, it extends to-day to Rye Harbour in the east, and to Poole Harbour in the west—the latter locality being a very favourable one for the detailed study of the plant. For experimental purposes plants have been introduced into muddy estuaries in Kent, Essex, Suffolk, Norfolk, and the Firth of Forth on the east coast, and into the Severn and Dovey on the west. Recently it has been introduced into Cork Harbour, whilst a very thorough trial is being made in Holland. All these experimental cultivations are under close observation, and details of their progress are periodically recorded.

The origin of Spartina Townsendii still remains a mystery, the current hypothesis being that it is a spontaneous hybrid between two other species, S. stricta and S. alterniflora, both of which occurred in the vicinity of its place of origin. Other views obtain, but, like the hybrid hypothesis, remain unproved. Whilst England was the country first favoured by this remarkable manifestation, France, after an interval of years, has become involved. At the present moment certain aspects of the phenomenon are shown in France in a form even more impressive and spectacular than on the English side of the Channel.

Strictly speaking, France holds two quite distinct Spartina problems. In the south-west corner of France, in the river estuaries discharging at Bayonne and at Fuenterrabia (the Bidassoa), S. stricta and S. alterniflora both occur, and at the latter station a third form, excessively like our own S. Townsendii, was discovered in 1895 and named S. Neyrautii. This plant was provisionally regarded as a hybrid, so that, like Southampton, Fuenterrabia would be an independent centre of creation. The further history of this centre is of very great interest and is occupying attention, but it will not be dealt with here.

The second of the French Spartina problems relates to the appearance and spread of S. Townsendii on the north coast of France. Essentially this would appear to be an extension of the Southampton area under very favourable conditions and to be quite independent of the Bayonne-Fuenterrabia creation. It is true that some French authorities suppose this to be a direct introduction from North America, but this view cannot be accepted until the presence of undoubted S. Townsendii has been verified on the American coast. This plant, as it occurs in northern France, being indistinguishable from the form S. Townsendii as we know it in England, it seems more probable that the plant was brought by shipping from Southampton. Moreover, S. alterniflora, one of the suspected parents, has not been recorded for the Channel coast of France.

From Cherbourg to Havre most of the French river estuaries contain Spartina Townsendii; that of the Vire at Carentan, which was invaded in 1906 ("a few tufts") is now filled with a more or less continuous block occupying some four square miles.* In the present article it is the progress of this plant in a more recently invaded locality, viz., the mouth of the Seine, that will be followed. Here, as will be shown, establishment has been followed by occurrences of no little interest, whilst the rate of advance in the tidal ground seems to outstrip all previously recorded cases. In this visit to the Seine I enjoyed the great advantage of the company of my friend, M. Paul Senay, a botanist possessing great local knowledge of the flora, and under whose guidance I was able to see much more in the time available than would otherwise have been possible. To these services I am greatly beholden.

The existing effective estuary of the Seine is about five miles wide at the mouth (Havre to Villerville), and extends up stream as a gently contracting triangle some fourteen miles to the conspicuous cliff on the south bank named La Rocque. The elaborate system of training walls which end some miles below La Rocque is continued a long way up the river, and one of the immediate results of these constructions (completed in 1870) was the reclamation of the ground between the works and the original shore line—an area of some forty square miles in the higher reaches. On the north side, from Tancarville to Havre, a further large area has silted up, and it is on the inner fringe of these marshes that Spartina is actively spreading to-day. The chart (Fig. 103) gives an idea of the present conditions, the tufted marsh, on which cattle graze, being dotted. Between the free ends of the training walls and Harfleur much unoccupied foreshore exists, and this is the principal theatre of Spartina advance.

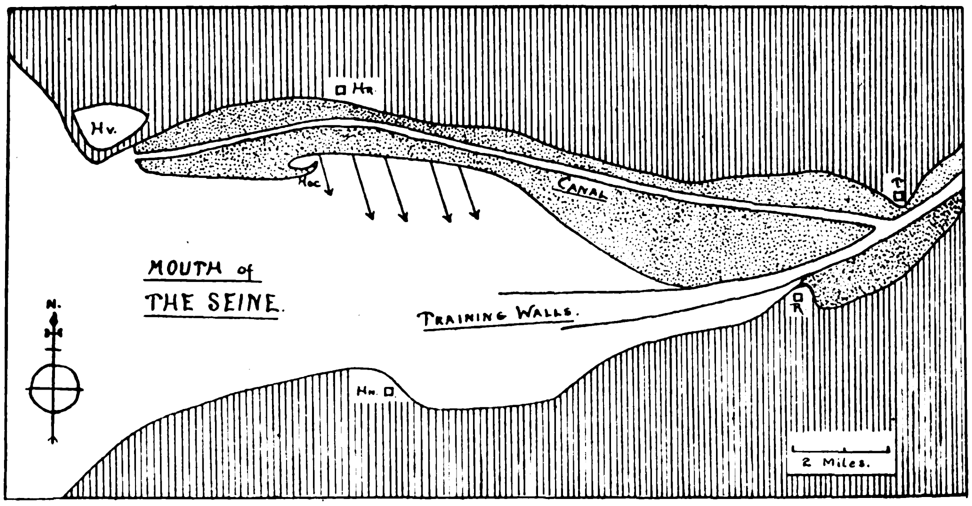

FIG. 103.—SPARTINA IN FRANCE.

Sketch map of the Seine estuary. Vertical lines indicate the mainland: dotted areas indicate reclaimed and tidal marshes. The arrows from the north side indicate the present direction of the spread of Spartina. Hv., Havre; Hr., Harfleur; Hn., Honfleur; R., La Rocque; T., Tancarville; Hoc., Pointe du Hoc.

The first definite records for S. Townsendii are 1915 for the higher reaches near Tancarville, and 1922 for the muds opposite Harfleur. The ground along the north bank is rather inaccessible on account of the Havre-Tancarville Canal (which allows smaller craft to proceed up stream without exposure to the stormy waters of the lower estuary), so it is possible that our plant may have got a footing here at a somewhat earlier date. However this may be, there can be no question of the magnitude of the phenomenon to-day.

Two miles east of Havre, a little shingle spit, the Pointe du Hoc, projects into the estuary at the point where the Lézarde, the river from Harfleur (now intersected by the canal) formerly entered the Seine estuary. The Pointe du Hoc runs parallel to the shore from which it is separated at its west end partly by alluvial ground built up above tide level by dumping, and at the east end by marshes regularly covered by the tide. A third-of-a-mile from the top of the Hoc spit (where there is a rifle range) stands a conspicuous earthen mound or butt, some twenty feet in height, from which a commanding view of the estuary may be obtained.

From this point is visible a great belt of Spartina Townsendii occupying the marginal position on the Harfleur front next within the reclaimed marsh in which runs the Tancarville Canal; this belt continues in the Tancarville direction so far as the eye can see. From this belt stretch out almost at right angles into the estuary numerous streamers of Spartina tussocks in open formation; these reach out into the estuary far beyond the line of prolongation of the axis of the Pointe du Hoc. This butt on the Hoc, as things are at the moment, is probably unsurpassed as a view point of Spartina activity. To enjoy fully this wonderful picture of Spartina marching over the grey muds with the relentless vigour of youth the butt should be visited on a sunny evening in autumn when the sides of the tussocks turned towards the observer will be flooded

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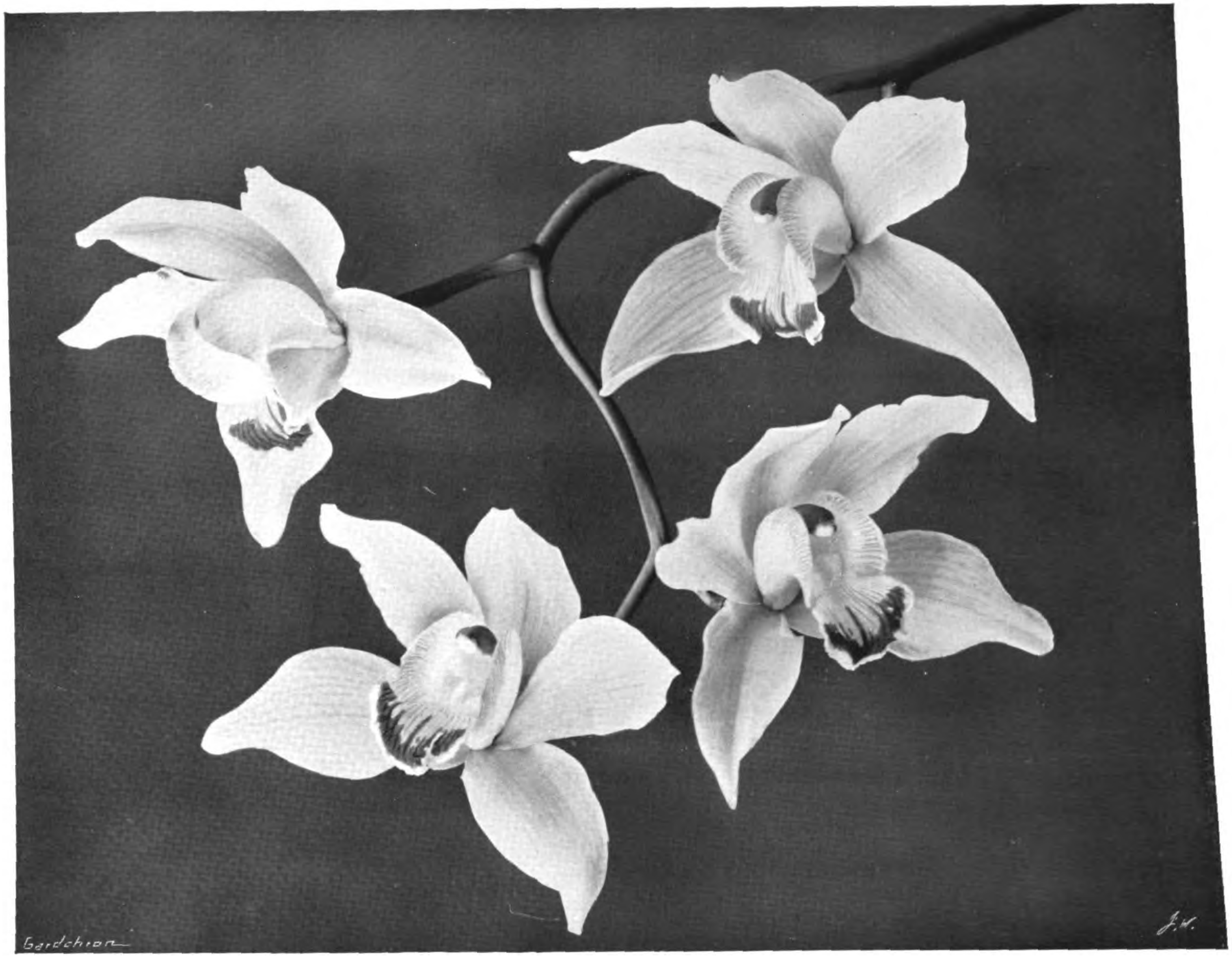
* *Gard. Chron.*, March 22, 1924, p. 162.

Supplement to The GARDENERS' CHRONICLE



CYMBIDIUM FLAMINGO VAR. ROSEUM.

with light. In a few years time this phase will have passed, and this north bank of the Seine will be a continuous prairie of grass extending from the Hoc to the end of the training wall and filling the landscape in front. How far it will encroach on the estuary remains to be seen.

The method of spread and extension here is different from that at Poole, with its ancient lagoon-type of harbour with level flats intersected everywhere by meandering creeks. In such situations Spartina tends to settle in belts parallel with the edges of the creeks, and the spread is inwards until the units or islands of mud are covered.

Along the north bank of the Seine there is a level strip of saltings, the outer margin of which consists of meadowed Spartina. From this edge the foreshore slopes gently down to the low-water tide mark. Along the upper two-and-a-half feet (vertical) of this slope Spartina is able to spread, reaching out nearly a mile in open formation. These tussocks attract silt and so the level of the actual ground on which the Spartina stands is raised at once. As an indirect result of the rise of the crest the bare slope below also reacts and comes up gradually to the level at which Spartina plants can operate. Consequently, ground which till recently was below the Spartina zone is in process of rising to meet it. This phase, illustrated in Fig. 104 (middle-distance), is at present in full development, and it is to be expected that this encroachment will continue until a point is reached at which the scour of the waters of the estuary renders the ground too mobile for further advance. In another respect the colonisation differs in the two areas, for whereas in Poole Harbour Spartina follows Zostera in the succession, at the mouth of the Seine there is no Zostera, and Spartina settles on virgin ground.

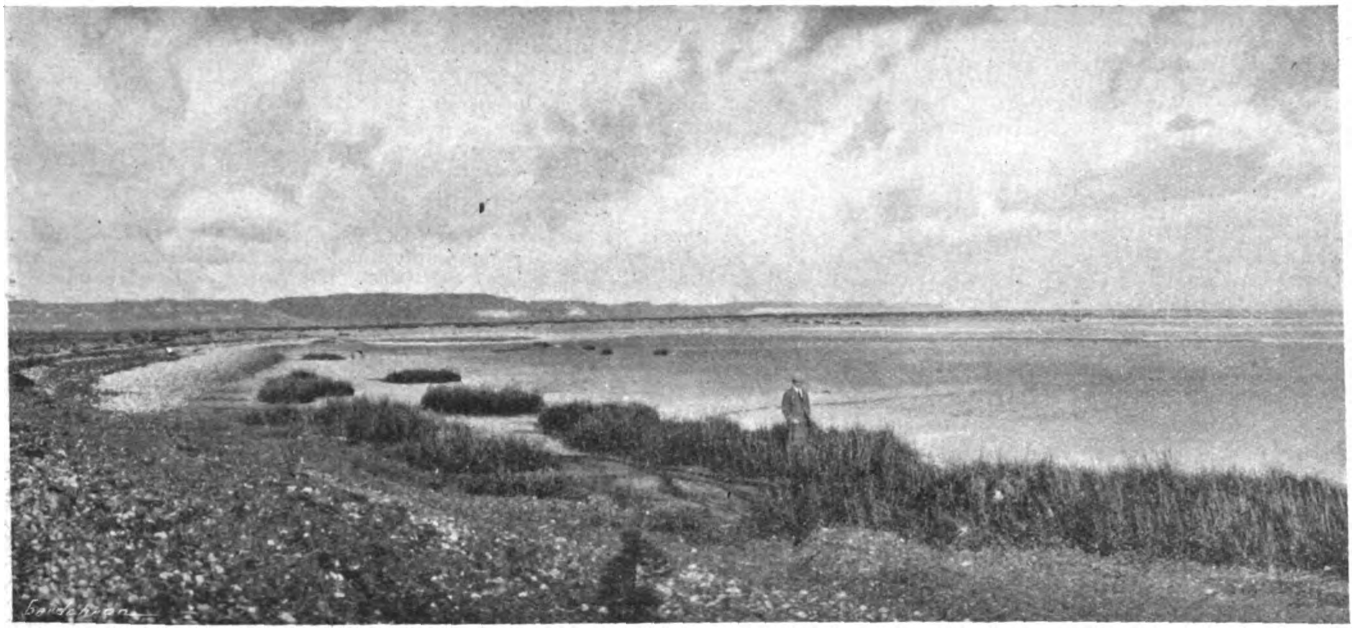


FIG. 104.—SPARTINA IN FRANCE.

View showing Spartina Townsendii in the Seine estuary, seen from the Pointe du Hoc (Havre) looking east

The scene roughly depicted above is certainly the most striking picture in the Spartina world at the present moment—at any rate, so far as Europe is concerned; and having regard to the fact that the plant was unknown in this particular theatre till ten years ago, the advance must be reckoned as one of the most noteworthy examples of the kind.

The Pointe du Hoc locality is also remarkable, perhaps unique, in illustrating one of the limitations of Spartina. Hitherto, within the zone in which it operates this plant holds the ground won. The next stage in the succession has never been recorded. That in fullness of time other plants should oust Spartina is inevitable unless the plant is to be an exception to the law of vegetation. The Hoc is a shingle ridge rising slightly above spring tide level. On its landward side salt marshes stretch across to Harfleur, the outer zone of which is a Spartina meadow.

At a distance of one hundred yards or so from the shingle ridge in this direction, and running parallel to it, is a tidal creek delimiting the edge of this meadow. Between the creek and the shingle ridge is a stretch of salt marsh one hundred yards broad and about half-a-mile long (partly seen on the left in Fig. 104), and this is occupied by a dense and shaggy sward of Glyceria maritima. Scattered here and there in this turf are single plants of Aster Tripolium, standing well above the grass, and solitary haulms of Spartina barely projecting from it. These relations were evident when we had the good fortune to meet M. Duteurtre, vice-president of the local Linnean Society, who explained what had happened. He was familiar with the ground, as he often went there for wild-fowl shooting. Formerly this strip carried mainly Salicornia herbacea (annua) this was followed by Aster Tripolium, then came Spartina Townsendii, whilst recently Glyceria maritima had completely overrun it. As stated above, a certain number of Asters had survived the two invasions, whilst the Spartina had fared worse—the occasional top of an arrested shoot alone coming to the surface.

This overwhelming of Spartina by Glyceria, though a local and isolated occurrence, is nevertheless significant. The Glyceria is unusually luxuriant in its growth and presumably there must be some circumstance of the habitat which discriminates strongly in its favour. What this may be will need a special investigation to determine though the following may have some influence in the matter.

Havre is an important commercial port where much rubbish and trade refuse accumulates. The municipal authorities put what they can in destructors, the rest is dumped on waste ground or cast into the estuary. This constant dumping on land has made Havre botanically famous for the large number of unusual alien plants which spring up on these dumps—many of which have been collected and listed by M. Senay. The Pointe du Hoc is fed by a west to east inshore current, and this sweeps the floating refuse on to its tide-line. Broken mattresses, old garments and boots, worn out motor tyres, residues of imported produce, in fact every sort of garbage strews the beach. Newly established Spartina hummocks alongside (Fig. 104) where the figure is standing speedily collect the weathered fragments of this litter as a rich humus, and it seems probable that the same material finds its way round the tip of the Hoc and is guided into the backwater within the ridge, *i.e.*, to the area where Glyceria has ousted Spartina. Glyceria, close in texture and deep of root, has a way of asserting itself in competition with other plants on the higher levels of the salt marsh, and for all I know, it may be that this plant is able to suppress Spartina by its unaided merits as a fighter, and that what we can see here is only a foretaste of what is going to happen in many localities. Still, as the circumstances of the Hoc are rather peculiar, it seems worth while to place them on record. *F. W. Oliver, University College, London.*

NON-ARSENICAL PREPARATIONS FOR GARDEN USE.

Arsenic on fruit has been much in the limelight of late, but, curiously, its saturnine accompaniment has not been brought forward; yet the lead is almost more to be deprecated than the arsenic, which, if not too abundant, becomes rapidly eliminated, whilst the lead is stored up ready to add to the next dose.

With Derris, and perhaps nicotine, arsenical preparations are hardly needed; apart from weed killer and some Paris green obtained for making poisoned baits for slugs, I have used none for about twenty years. As regards weeds, latterly I have used mechanical means and the blow-lamp; salt did not prove very satisfactory; thiocyanates are too expensive; "carbo-crimp" which was in excess, I used one year with good effect on paths (applied for economy with a pneumatic sprayer) as I observed that grass suffered, and the whole of a new plantation of Mint was wiped out by proximity to a "carbo-crimp" sprayed area

On p. 145 (February 27) there is a *lapsus calami*; the effective principle of Derris is not an alkaloid, moreover it does not contain any nitrogen, consisting only of carbon, hydrogen and oxygen. It can be obtained in crystalline and resinoid forms and gives a remarkable colour reaction, viz., if a tiny particle is moistened with a drop of strong nitric acid some reddening occurs which gives place to a deep peacock blue-green on adding a drop of ammonia. Curiously those who have written lately upon the substance have all looked upon Derris as a contact agent; this, I believe, is entirely, or almost entirely, erroneous, for essentially it acts as a stomach poison. Starting in the Malay States in 1902, where some field trials showed it a potent agent for the destruction of mosquito larvae, work was continued on my return up to 1907; it was not possible to publish the large amount of observations in those days, and naturally the loss of time made it difficult to use old notes. A fairly large scale trial was made in the late Dr. W. H. Maskell's garden at Shelford on 13th June, 1904, where the Gooseberries were alive with saw-fly larvae; the larvae were promptly killed, and the cooked fruit gave rise to no unpleasant symptoms in the consumers. It may be noted that the fatal dose for insect life is extraordinarily small, whilst man and other mammals require very large doses to produce a fatal effect; hence it seems to be rarely used for poisoning in Malaya, as large quantities, which would be detected, would be needed (*vide* Gimlette, *Malay Poisons and Charm Cures*, Churchill, 1923). In those now far off days a number of larvae of the Small Eggar of good size were put on a spray of leaves which had been dipped in a suspension of the Derris root; they were all dead next day, when a further supply of larvae was put on, the leaves being now dry; the controls had had the leaves wetted with water in case mere wetting might have an effect. This renewal of application of larvae continued till the leaves became too withered in about ten days; none of the controls died, and all of the Derris-fed larvae were killed. Open air trials showed that the poison still remained active for at least a fortnight. Here the effect is clearly as a stomach poison.

On the other hand, a very extensive series of trials was made upon the black Bean aphis and the woolly aphis: in the latter case the trials were carried on throughout the summer, both with spraying and with careful use of a camel-hair brush so as to get thorough wetting of the patches, which had a milky appearance when treated. The woolly aphis is, of course, difficult to wet, but in neither case was there any appreciable diminution. I cannot but think that the irregular results which have been obtained with contact trials have been due to the insects sucking some droplets of the fluid when dislodged ere they again plunged in their beaks or in the case of the somewhat crude method of bathing caterpillars some of the poison may have been licked up. The slow death of mosquito pupae (perhaps two or three days after the larvae) suggests that absorption of the extremely insoluble agent takes place, mere contact not sufficing. Whether or no in some cases there may be a contact effect, the main utility of the drug must be as a stomach poison.

The most susceptible creature that I know is the "Water Flea" (Daphnia and Moina), which dies rapidly in the most amazing and incredibly high dilution of the poison; tadpoles and mosquito larvae were found to be very good experimental subjects for recognising the potency of different preparations. The first large-scale trial was made on a fruit plantation of Mr. Clough, at Burley, Hants, on the 23rd May, 1904. In all these trials the roots were ground up with successive lots of water and no other ingredient added. I still have some of the original roots, now some twenty years old and though they have not been regularly tested for strength, they still retain some active power, and a solution is ladled on to small seedlings when "cut worms" are about.

A curious feature in Derris is the localisation of the poison to the roots; trials of stem extract showed very slight activity and the leaves nil, indeed, it may be noted that they are attacked by some caterpillar occasionally (sp. not known to me). Thinking that possibly there might be a localisation of poison in some other Leguminous roots, I grew a quantity of Yellow Lupin and made a root extract, but it was negative.

Nicotine merits the comment that it needs to be cheapened. Thinking that perchance the spartein molecule might be sufficiently related to be effective, numbers of trials were made with it. I understand from another observer that he likewise obtained a negative result.

One of the older writers, the reference to which I have mislaid, had a high regard for the virtues of an extract of Walnut leaves as an insecticide. Forsyth, however, mentions them (3rd. Ed. 1803, p. 281) as a means of "killing slugs, worms in the ground and insects on trees," at any rate, when mixed with several other agents; Phillips (*Companion to the Orchard*, 1831), mentions a Walnut extract for bringing up worms for fishing; he states, curiously, that "the effluvia of Walnut trees is hurtful to the head, on which account it is not safe to sit uncovered beneath them." Here there is distinct indication of a line for investigation, which I hope someone will follow. *H. E. Durham.*

FUMIGATION OF GLASSHOUSES.

THE control of pests under glass by means of fumigation is of such importance that it is necessary to carefully consider a number of factors before proceeding to carry out the operation, irrespective of the fumigant to be used.

It is very certain that in the early stages of the season plants are most susceptible to chemical treatment, and therefore greater care must be exercised owing to the comparatively small limits of safety with the more modern types of fumigants which are now being used.

Plants may not exhibit any external symptoms of distress or stimulation as the result of fumigation, but the writer is convinced that no matter what fumigant may be used the plants do suffer from the effects to a greater or lesser extent; undoubtedly the degree of either distress or stimulation is influenced by such matters as soil conditions, house temperature, humidity, situation, light intensity, prevailing winds, general climatic conditions and the vitality of the plants.

It is therefore of paramount importance to make a survey so far as possible before proceeding with the fumigation. It is surprising to find considerable ignorance displayed by many growers, even of mature experience, concerning the methods for determining the cubical capacity of an ordinary greenhouse. Unquestionably many disastrous results may be entirely attributed to an incorrect estimation of this measurement.

A quick method of making such a determination may be of interest—First measure the length then the breadth of the house; then, by means of a measuring stick, take the height from the ground to the ridge, and then the height from the ground to the gutter or eaves. The cubical capacity can be calculated by multiplying the length with breadth and with the average height. The average height is the height to ridge, plus height to gutter, divided by two.

Liquid fumigants are usually measured out by liquid measure, and it should be remembered that one gallon equals 160 fluid ounces. Solid fumigants are usually measured out by weight It will be obvious when using a fumigant where only small quantities per 1,000 cubic feet are used that any discrepancy in the determination of the cubical contents of the house might easily be the means of causing serious and detrimental effects upon the plants under treatment.

Some plants exhibit what is termed varietal susceptibility to chemicals, hence with a mixed collection of plants it would be extremely unwise to use an average concentration advocated, say for Tomatos.

It is the practice with some growers to allow an attack by a pest to become a fairly heavy infestation before applying remedial measures This would appear to be an unwise procedure because once the pest has established itself it is much more difficult to eradicate.

A practice which is rapidly extending in certain of the commercial growing districts, particularly where the climatic conditions favour the continuous breeding of such pests as white fly out-of-doors, is to fumigate at intervals with a low concentration so soon as a few flies are observed. This is to be commended because the young and tender plants are not subjected to heavy concentrations at intervals, thus obviating any serious checking influences upon growth. At the same time, with successive mild fumigations the young insects are killed off soon after they are hatched.

A method at present practised by Tomato growers where young plants are concerned is to fumigate every fortnight, or as required, using one-eighth to one-sixth of an ounce of calcium cyanide per 1,000 cubic feet, with a rising rather than a falling temperature, starting at about 58°. The necessary amount of humidity is secured by closing the house just prior to the application of the fumigant. By this means it has been found possible to keep both white and green fly in check at this period of the year without producing any visible effect upon young plants, such as Tomato and Cucumber seedlings, Asparagus Sprengeri, Smilax, Tulips and Carnations.

It is important when using calcium cyanide to fumigate with a rising house temperature because, should there be a fall in the outside temperature during the period of fumigation the moisture in the house is likely to become condensed in the form of very fine droplets. These dissolve the toxic gas given off by the cyanide and finally settle upon the foliage. Such an occurrence is very prone to cause spotting of the foliage. *Theodore Parker.*

PUBLIC PARKS AND GARDENS.

THE Ministry of Health has held an enquiry into the application of Blackpool Town Council for sanction to borrow £67,757 for improvements at the Park, and £22,431 for the purchase of land at North Shore for a recreation ground.

ELLESMERE Urban District Council proposes to make application to the Ministry of Health for sanction to borrow £2,775 for recreation ground purposes, and £2,125 for allotments.

AN enquiry was made recently by the Ministry of Health into an application by the Bognor Urban District Council for sanction to borrow £8,200 for the purchase of property known as The Den, in Upper Bognor Road, for a recreation ground.

DONATIONS towards the purchase money of £12,000 required for securing Petts Wood, Chislehurst, an area of eighty-seven acres of woodland as a memorial to the late Mr. Willett, amount to £4,500, and the committee has every hope of the whole of the purchase money being raised. An appeal is made to sports clubs to arrange for collections from their members, as by the adoption of the Day-light Savings Bill, facilities for sports have been greatly increased. The secretaries of sports and athletic clubs may obtain collecting cards from the Hon. Secretaries, Mr. Basil Holmes, and Capt. Larking, C.C., Early Closing Association, 34, Ludgate Hill, E.C.4., to whom contributions may be sent.

THE Corporation of Huddersfield has acquired, at a cost of £3,000, land for the extension of Greenhead Park.

HULL Corporation has received sanction to borrow £11,005 for laying out fields for a public recreation ground. The Parks Committee is considering the purchase of 106 acres for more playing fields.

MESEMBRYANTHEMUM.

(*Continued from page* 195.)

5.—GIBBAEUM, HAW.

G. album, N. E. Br. (Fig. 105. c).—Stemless, in the plants seen, 1–1½ inch high, with a clump of growths crowded upon the stout rootstock, which has stout, fibrous roots. Growths as received varying from irregularly and obliquely subglobose, and 9–10 lines in diameter, to obliquely ovoid and 9–15 lines long, 8–11 lines broad and 6–8½ lines thick, formed of two subequal or unequal short leaves with their flat faces closely pressed together, with the fissure between them 2–4 lines deep and usually oblique in both transverse and vertical directions, but when the two leaves are subequal is nearly central and subvertical. The two leaves or lobes in side view are very obtusely rounded at the top, not at all compressed, both are slightly and obliquely keeled, and the smaller one often has a concave groove at its side in which the pedicel of the flower of the previous growth fits; surface smooth, glabrous to the eye, but velvety to the touch, and under a very strong lens seen to be covered with a microscopic pubescens, pale whitish-grey or whitish in nature, probably becoming pale green under cultivation. Flowers solitary, terminal, exserted from the fissure, and by the development of the new growth appearing to be at the side of the latter. Pedicel about 6 lines long and 2–2½ lines broad, slightly compressed, with acute edges, and together with the calyx having the same velvety surface and colour as the growths. Calyx subequally 6-lobed; lobes about 3 lines long and 2–2½ lines broad, elliptic or elliptic-oblong, rounded at the apex, without (or only one of them with narrow) membranous edges. Corolla about an inch in diameter, expanding at about midday and closing about half-past three in the afternoon, gradually enlarging until about the third day, when they attain their full size, according to Dr. Muir; petals very numerous in several series, 4–5 lines long, ¼–⅓ line broad, linear, obtuse, the innermost becoming filiform staminodes, all pure white. Stamens numerous, about 1½ line long, erect, white. Stigmas 6, erect from a slightly spreading base, nearly 1 line long, stoutly subulate, acute, plumose, white; ovary flat at the top, 6-celled. Capsule (closed) 2½ lines in diameter, convex and white, with 6 furrowed. brown, prominent ridges at the top, 6-valved: structure of the valves and cells as in the generic character, with the spot at the opening of the cells blackish.

Ladismith Division: On hills at Phisantefontein, Muir 3093! and at Derde River, 1,200 ft. alt., Muir 3623! Growing among white stones left by erosion of the Bokkeveld shales.

Dr. Muir informs me that the local name for this plant is "Volstruistone" (Ostrichtoes), and that it is a good example of protective mimicry, as the white or pale greyish-white growths imitate the white quartz stones among which it grows very closely, and the flowers being also white do not make the plant more conspicuous at flowering time, which cannot be said of some other plants that resemble their surroundings, such as Mesembryanthemum Bolusii and M. simulans, which have large and conspicuous yellow flowers. Dr. Muir writes: "The white areas are acres in extent. The white flowers and grey corpuscula make the plants nearly invisible to a man, but his eye soon learns the trick and the protective colouring is no defence later when he gets a little experience. Against a hare or an antelope, with his nose to the ground the protection must be nil. I cannot understand the reason for the colouring of the plant being confined to the quartz patches." This adds another example to those I have mentioned in my previous articles of how many of these plants resemble their surroundings, and Dr. Muir's comment upon this fact that the meaning of it is not altogether clear, coincides with that which I have already expressed under Lithops.

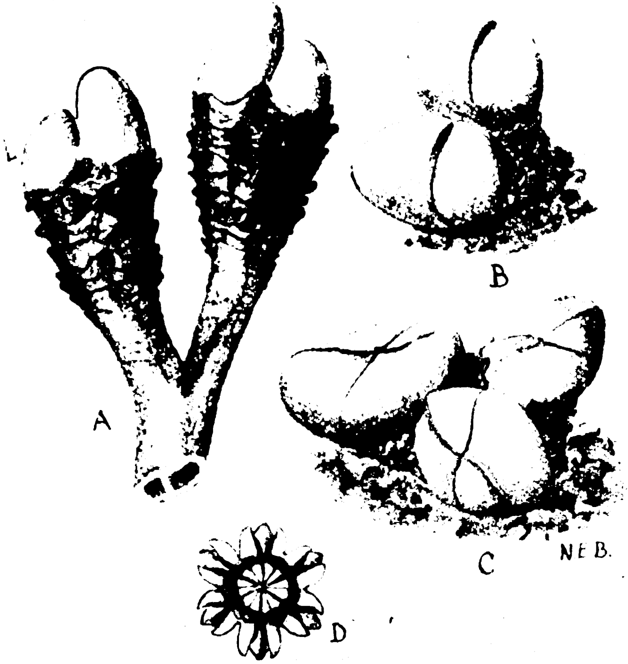


FIG. 105.—GIBBAEUM SP.

A., G. Muiri; B., G. dispar; C., G. album. All natural size.
D., fruit of G. album expanded and enlarged.

But Dr. Muir also suggests that as these white plants chiefly occur on the glaring quartz-fields the white hairs may serve to protect them against glare and reflect light and heat. Can any reader offer any explanation?

This plant is quite distinct in appearance from any other, and is the only white-flowered member of the genus at present known. Dr. Muir informs me that it develops its flowers very slowly, and that after expansion the flower gradually enlarges until the third day.

Under a microscope the pubescence is seen to be a fine, dense, felt-like covering of bushily branched hairs.

G. dispar, N. E. Br. (Fig. 105. B.).—Stemless. Growths about ¾-inch high and ½–1 inch in diameter, irregularly and somewhat obliquely subglobose or subglobosely ovoid, with a closed fissure 2–4 lines deep, transversely straight (not obliquely) across the broadest part, dividing the growth into two unequal or subequal slightly keeled portions; surface somewhat harshly velvety to the touch from a dense minute whitish or greyish pubescence of spreading (not adpressed) hairs easily visible under a lens. Flowers not seen. Pedicel of fruit 1–1½ line long. Capsule 3½ lines in diameter, whitish and with 6 ridges at the top, 6-valved and 6-celled, of the same structure as detailed under the genus.

Ladismith Division: Between Waterval and Van Wijks Dorp, 1,200 ft. alt., growing on shales, Muir 3797!

This species appears to be more nearly related to G. album than any other, but is totally distinct in its pubescence and very short pedicels. As the flowers of this species were not seen and those of G. album were in a withered condition when received I have been unable to represent them in my sketches of these two species.

G. geminum, N. E. Br.—Plant growing in masses up to a foot in diameter, ex Dr. J. Muir. Growths more or less purplish at the base. Flower solitary, terminal, with the pedicel exserted about 2 lines from the orifice, not bracteate. Calyx subequally 6-lobed; lobes about 2 lines long, oblong, obtuse, keeled, four of them with narrow, membranous edges. Corolla rather small, about half-an-inch in diameter; petals apparently in 1–2 series, about 2½ lines long and ⅓–½ line broad, cuneately linear, obtuse or slightly toothed at the apex, entirely rich magenta to the base. Stamens erect, in about 3 series, ¾–1¼ line long, apparently creamy-white; filaments not ciliate nor dilated at the base. Stigmas 6, erect, about ½ line long, subulate, acute, green. Top of the ovary green.

Ladismith Division: Klein Karoo, at Hondewater, Muir 3664!

The above particulars complete the description given previously in *The Gardeners' Chronicle*, 1922, vol. LXXI, p. 129, fig. 64F.

G. luteoviride, N. E. Br.—"Stems prostrate, weak, 2–3 inches long. Leaves larger and longer than in M. perviride, oblong, semicylindric, triquetrous above, yellowish-green. Flowers terminal, sessile, solitary. Calyx 6-lobed, 2-edged at the base; the two outer lobes larger, keeled, obtuse, the others flat, subovate, retuse, surrounded by purplish membranes. Corolla almost as in M. perviride; petals numerous, somewhat imbricated at the base, rather broad or cuneately linear, often notched at the apex, pale rubicund, with darker midline; the sides at the base whitish. Filaments (*i.e.*, stamens) spreading, about one-third as long as the petals; anthers sulphur-yellow. Styles 6, strongly plumose, at length spreading, but very short, and much shorter than the filaments.

Flowers in January. Introduced in 1795."

G. perviride var. luteoviride, N. E. Br., in *The Gardeners' Chronicle*, 1922, vol. LXXI, p. 151. Mesembryanthemum luteoviride, Haw. *Synop. Pl. Succ.*, p. 226 (1812). M. perviride var. B., Haw. *Misc. Nat.*, p. 37.

South Africa: Locality and collector unknown but the latter was probably Masson.

The above description is all that is known of this plant.

G. molle, N. E. Br. (Fig. 82 D., p. 172).—Stemless. Rootstock deeply descending, branched, firmly fleshly, bearing a clump of many growths. Each growth (as received) compressed-subglobose, becoming under cultivation more elongated and obliquely ovoid or obovoid, 9–18 lines high, 6–10 lines broad and 6–9 lines thick, slightly or distinctly and more or less unequally 2-lobed at or 2–3 lines below the top, with the notch or fissure separating the lobes 1½–3 lines deep; when the notch is at the top the lobes are obtusely rounded and scarcely keeled, when below the top the latter is more or less pointed and the growth more or less resembles a shark's head; substance rather soft and pulpy; surface smooth, glabrous, uniformly pale green or sometimes pinkish, not dotted. Calyx 6-lobed, with the ovary-part included in the body of the growth; lobes 1½–2½ lines long, ovate, obtuse, some with broad membranous margins. Corolla spread over the top of the growth, only seen in a withered condition, an inch or more in diameter; petals numerous, 4½–6 lines long, ½–¾ line broad, cuneately linear, obtuse, rose-pink, stamens numerous, erect, about 2½ lines long, white or creamy-white. Style about 1¼ line long, moderately stout, stigmas 7, ascending-spreading or recurving, 1–1½ line long, filiform and more or less plumose. Ovary inferior, flat at the top, 7-celled; placentas on the outer wall of the cells.

Ladismith Division: Klein Karoo, on hills at Adams Kraal, 1,200-1,400 ft. alt., Muir 3210! Montagu Division: between Touwsfontein and Allemorgensfontein, Muir 3796! Also found by Dr. Muir at Marthinus Kloof in Riversdale Division.

This species was very kindly sent to me by Dr. J. Muir. I have also what I believe to be the same species sent to me by Dr. R. Marloth (number 11879) from the Ladismith Karoo, but it has not yet flowered.

Dr. Muir informs me that it grows in clefts between the upturned edges of the dry, friable laminated Bokkeveld shales, flowering in July and August. Also that when cultivated in its own region it is a soft and delicate species, not very tolerant of water, the rainfall of that region being less than 17 inches yearly. This statement agrees fairly well with my experience of it, which is that if watered too frequently the growths are apt to split open, so that a fair amount of neglect suits it very well. Dr. Muir also informs me that in its appearance and colour this species somewhat resembles the broken shales among which it grows, and that hares, antelopes and other animals eat these plants and their allies.

G. Muiri, N. E. Br. (Fig. 105 A, and Fig. 82 C, p. 172).—"Plant growing in masses, with longer prostrate main branches and upright secondary ones with the growths often in pairs," according to Dr. J. Muir. Branches in one specimen seen naked at a short distance below the growths, and 2½–3½ lines in diameter, forking and becoming more or less flattened, and in the specimen seen 2½ inches long, forking three times in that length. Growths ¾–1¼ inch long, 8–11 lines broad and 5–9 lines thick, obliquely ovoid, slightly compressed, very unequally two-lobed at the top, the longer lobe 2–4 lines long above the 3–4 line deep fissure between them, both lobes more or less compressed, obtusely rounded at the apex in side view and distinctly keeled over their tops; surface smooth, glabrous, slightly shining, pale green or greenish-yellow (according to Dr. Muir the "natural colour is of a pale, somewhat sickly greenish-yellow"), having a rather unhealthy appearance. Pedicel slightly exserted from the fissure, glabrous. Flowers only seen in a withered condition. Calyx 6-lobed down to its union with the ovary; lobes subequal, 2-2½ lines long and 1½ line broad, oblong-ovate, obtuse, the inner with membranous margins. Petals numerous, in about 2 series, 6–8 lines long, ½ line broad, cuneately linear, obtuse, rose or rosy-purple apparently to the base. Stamens numerous, erect, about 2 lines long, white, surrounded by some linear-filiform white staminodes. Stigmas 6, about 1½ line long, radiating on the top of the ovary, very stout or probably plumose, acute; no style, Ovary inferior, flattish on the top, compressed and two-edged, 6-celled, with the placentas on the outer wall of the cells. Capsule (closed) about 3½ lines in diameter, with 6 ridges on the slightly convex top, 6-valved and 6-celled; valves pallid, with their dark brown expanding keels diverging from the base, slightly incurved at the tips, with broad, membranous, rounded, obtuse marginal wings; cells roofed with membranous cell-wings, and the opening marked with a pallid spot, but without a tubercle. Seeds minute, about ¼ line long, ovoid, pallid with a brown nipple.

Montagu Division: Between Touwsfontein and Allemorgensfontein, 2,000 ft. alt., Muir 3704!

This is a rather peculiar species, which I have much pleasure in naming after its discoverer, Dr. J. Muir. Beneath each growth are 6–10 old sheaths, the remains of former growths, and below these sheaths the branches and stems are naked and remarkable in their formation, for instead of the part below where a branch arises becoming terete it becomes flattened, and has the appearance of the new branch becoming decurrent and fused with the older part. I do not remember to have seen any other quite like it, and it certainly deserves investigation. *N. E. Brown,*

(*To be continued.*)

FORESTRY.

OUR VANISHING ELM TREES.

It is well-known that our native Elm is becoming scarce in various parts of England where at one time it was abundant, notably in Berkshire, Wiltshire and some of the neighbouring counties; indeed, to such an extent is this the case that the matter was discussed at the recent meeting of the British Association, and has been referred to in various forestry reports of late years. In Wales, also, there is a noticeable dearth of Elm timber in certain parts, particularly in Carnarvonshire, Denbighshire, and some of the southern districts of the Principality. Some forty years ago, Wiltshire contained perhaps the largest number of mature Elm trees that was to be found in any part of the country, but a close examination recently proved that most of the heavy timber of this kind has been felled, leaving mainly the smaller saplings that have grown up as offshoots from the present stools. The reverse of this is, however the case in other parts of the country, such as Kent, Middlesex and parts of Essex, where the Elm is more abundant, as between Edgware and Stanmore on the Cannons Park Estate, between Bromley and Farnborough, and almost all the way from London to Southend-on-Sea.

In connection with the scarcity of Elm trees and Elm timber, it is unfortunate, both from an ornamental and commercial standpoint, that the tree is but little planted, its reproduction being almost entirely restricted to suckers or self-sown seeds. This abnormal disappearance of Elm trees in certain parts is mainly due to the breaking up of large estates, to the clearance of land for building and other purposes, and to the general aversion in which the Elm is held by farmers and other cultivators of the land. Early decay of the tree, to which it is particularly susceptible, and little or no replanting are also partly responsible.

In the days before the break-up of large estates, the Elm was abundant in most parts of the country, this owing in part to discriminate felling, but nowadays, and for some years since, the best timber has been, and is being removed and sold for purely financial reasons.

To a much greater extent than perhaps any other tree, the Elm is a hedge row and field tree, pure plantations of the species being few and far between, for, unlike the Ash and the Chestnut, it is not adapted for coppicing, while as an underwood it is of little value. Not long ago, the Elm was fairly abundant around Hendon, but clearances for the aircraft sheds, flying grounds, railway extension, erection of houses and construction of new roads have all told their tale in the reduction of the numbers of this tree. The same is true in other suburban districts that could be named.

As to the actual replanting of the Elm this is a somewhat difficult problem to solve. especially in view of the fact that quite sixty per cent. of the trees that are and have been made use of in big afforesting schemes are of the Coniferous or soft-wooded kind. In the whole category of home-grown timbers none is more useful than that of the Elm, so that every effort should be directed to the reinstating of the tree, whether in field, hedgerow, or in mixed hardwood plantations. Young plants are comparatively cheap, while the tree grows rapidly, and few soils are unsuited to its perfect development. Elm wood is probably made use of for a greater variety of purposes than any other timber grown in this country, indeed, so numerous are the uses to which it is applied that they would be by no means easy to enumerate. Both the wheelwright and cabinetmaker make extensive use of the wood, while for the naves of wheels it is largely in use, bearing better than any other timber the trying ordeal of driving the spokes into the nave, which is only about twelve inches in diameter. It is of the greatest value for piles and planking in damp positions, and it is largely employed in engineering works. For making carts, wheelbarrows, pumps, coffins, and packing cases of every description Elm wood finds a ready market. When totally immersed in water, or kept constantly beneath ground the durability of this timber would be difficult to estimate. It is of a reddish-brown colour, with much twisted grain, fibrous, dense and tough, and when cross-grained difficult to work under the tools of the carpenter.

For hedgerow and field purposes the Elm is, perhaps, more commonly cultivated than any other tree, but it is to be feared that in a great many instances the wrong kind has been planted, to the detriment of hedges and farm crops alike. This is, however, by no means a necessity so far as the Elm is concerned, as there are several upright-growing forms, such as the Cornish Elm and Wheatley's Elm, that have turned out to be good trees for planting on cultivated lands, while the true English species has a decidedly upright inclination.

The Cornish Elm is one of the best of the upright-growing kinds and well-adapted for hedgerow and field planting, for without being unduly stiff and formal in outline, it is of distinctly upright growth, and interferes but little with the undergrowing shrubby or other vegetation. The greatest defect of this Elm is the quality of timber, which is greatly inferior to that of the common Elm. In several of our public nurseries the Elm is cultivated as a standard tree, the stem being clear of branches for about three parts of its height, and restricted to a single leading shoot. If left to its natural mode of growth, the Elm is not only, in many instances, a far-spreading, but dangerous tree, but by this method of treatment, and after attention in the matter of dealing with heavy and ungainly branches and rival leading shoots, its adaptability for street and hedgerow planting is greatly accentuated. It is generally admitted that the general disappearance of the Elm from the home landscape is in great measure due to its damage to adjoining vegetation, as well as to its being considered one of the most dangerous of trees owing to the unexpected fall of branches. From a purely utilitarian point of view as to value of timber, neither the English nor Scotch Elm can well be dispensed with, so that growers should do their best to lessen the evils to which these trees are susceptible when planted as hedgerow, field or park specimens, while the formation of plantations of Elms is to be recommended. *A. D. Webster.*

SOME INSECT PESTS FOUND IN THE SOIL DURING MARCH.

During March, the gardener often finds a large variety of soil-inhabiting insects, with some of which he may be familiar, while others he may not recognise.

Most of the soil insects dislodged in digging, sowing and planting operations this month are the grub or "larval" stages of insects, which in their adult state do not inhabit the ground. Many of these are waiting for an opportunity to break their long winter fast on young Cabbages, early Peas or other plants not put into the ground for their benefit, and ability to recognise some of these insect enemies will put the gardener on his guard and enable him to take what precautions are necessary to save his crop.

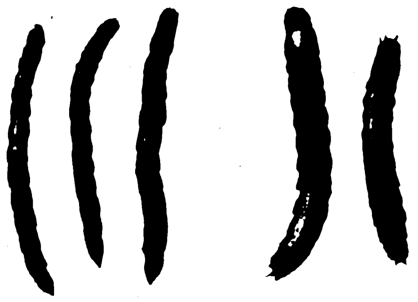


FIG. 106.—WIREWORMS: AGRIOTES SP., AND ATHÖUS SP.

Among the soil larvae one may expect to find in the ground during this and the succeeding month there are:—firstly, of the beetle grubs, the most ubiquitous and omnivorous wireworm (Fig. 106). There are as a rule two or more species of this insect in most gardens, the long, thin larvae—Agriotes sp. and the shorter and broader larvae—Athöus sp.—shown to the left and right respectively in the illustration. These grubs, when fully grown, measure about three-quarters-of-an-inch in length, and are of a yellowish to reddish-brown colour. They appear very shiny, as if polished, and possess a very resistant skin; they live in the soil for long periods—three to five years, before turning into the adult beetle. This beetle is a narrow black insect, known to children as the click-beetle or skip-jack from its habit of righting itself with a click when placed on its back. Wireworms may easily be distinguished from centipedes and millipedes, which they superficially resemble, by the presence of only three pairs of legs. Owing to their resistant nature wireworms present a very difficult problem in control. In gardens, and at this time of year particularly, poisonous substances to kill the grubs are not altogether suitable. Much may be done, however, on a small scale by means of traps, such as slices of Potato or Carrot fixed on short sticks and buried in the ground; these should be lifted and examined at intervals. It is a good plan when working the soil to have handy a jam jar or similar receptacle containing a little paraffin into which the wireworms and other pests can be dropped when discovered.

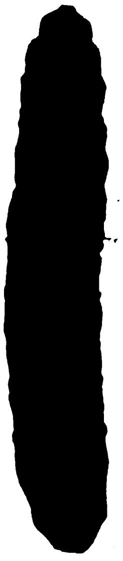


FIG. 109.—CUTWORM: LARVA OF THE YELLOW UNDERWING MOTH.

Another beetle grub, sometimes occurring in large numbers in garden soil, is represented in Fig. 107. This is the larva or "white grub" of the cockchafer beetle (Melolontha vulgaris); when full-grown it is a large fat creature of the typical curved shape shown in the illustration. This insect can be very injurious and damages many plants and young trees by biting through the roots. Like the wireworm, the grub lives in the ground for a period of years,—three to four. Probably this insect can be controlled in the garden sufficiently by collecting the grubs as they are turned up in the soil.

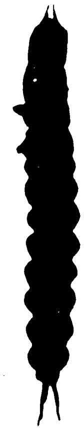


FIG. 108. LARVA OF THE COMMON GROUND BEETLE: PTEROSTICHUS.

While discussing the grubs of beetles, mention may be made of the insect illustrated in Fig. 108, the larva of a common ground beetle. (Pterostichus sp.). This creature, when full-grown, measures about an inch in length and is whitish in colour with a row of rectangular, light brown marks down the dorsal surface. It is characterised by the possession of a strong head bearing a pair of very large jaws which it opens and closes in a menacing manner, and by a pair of spines or processes at the tail (see Fig. 108). This grub is very common in gardens, and is dislodged in large numbers while digging at this season of the year. It should not be killed as it is carnivorous, and may render the gardener good service by eating other insects that feed on plants. Pterostichus is a voracious creature and does not hesitate to devour its own kind, as may be easily demonstrated by confining two or more specimens in a small box for a few hours!

Other soil larvae which may be a source of particular annoyance to the gardener in spring are the caterpillars of certain moths, known as "cutworms," a name derived from an unpleasant habit they have of cutting off young seedlings plants level with the ground. There are several of these larvae involved in this practice, but possibly a description of that illustrated, Fig. 109, which is one of the commonest, will suffice. The moth into which this caterpillar will turn is known as the Yellow Underwing, a large and rather striking insect with brown fore-wings, and hind legs of orange-yellow edged with black. The caterpillar varies greatly in colour from grey to greenish, and when full-grown is a stout grub measuring about an inch-and-a-quarter in length. Many of these larvae are now almost full-grown, others continue feeding at the gardener's expense till April. The chrysalis is dark red in colour and about an inch long; it is illustrated in Fig. 110. If a plant is discovered to be bitten through, search in the soil surrounding it will usually reveal the presence of one or more of these cutworms. They may also be collected at night when they emerge to feed.

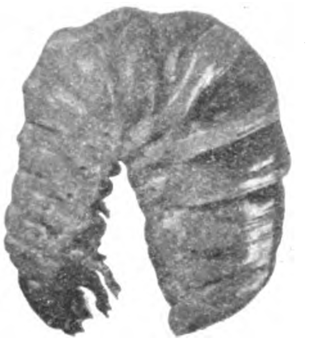


FIG. 107.—LARVA OF THE COCKCHAFER BEETLE.

I come now to the consideration of another large group of insects, the "flies," many of which have grubs or maggots which are exceedingly injurious to plant life. One of the most familiar of these is the daddy-long-legs, or crane fly (Tipula sp.) whose larva, the leather-jacket, rivals the wireworm in its capacity for destruction. Other injurious maggots belonging to this group include the Cabbage-root maggot, and the maggots of the Onion and Carrot flies. These three last-named, however, do not appear until May, and in this article attention will be restricted to the leather-jacket, which, after its winter sojourn in the ground, is now ready to attack plants. This grub lives in the soil for about nine months, having developed from an egg laid by the female fly in the preceding summer. When full-grown it measures about one-and-a-half inch, and is of a dark grey colour, somewhat resembling the cutworms before mentioned, from which, however, it may be distinguished by its absence of legs, a condition found in all fly larvae. The head is darker than the body and is usually retracted. The hinder part of the body is blunt and possesses a ring of fleshy projections which protect the breathing pores of the grub.

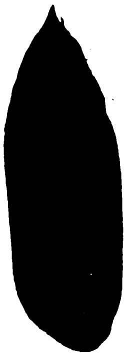


FIG. 110.—CHRYSALIS OF THE YELLOW UNDERWING MOTH.

Hoeing is a good remedy when the grubs are known to be present in the soil. Trapping, by means of pieces of turf buried in the ground, sometimes gives good results in a small garden. The pieces of turf should be examined from time to time and the grubs destroyed. Under certain circumstances of high infestation resort may be had to the poisoned bait method of control; this may be used both for leather-jackets and the foregoing cutworms. The bait is made of bran to which has been added an arsenical compound, such as Paris Green or lead arsenate, together with a little treacle or molasses to make it attractive. Use in the following proportions per acre: bran, 30 lb.; Paris Green, 1 lb.; and treacle, half-pint. The bait may be placed either in little heaps or scattered broadcast; if the former method is followed poultry must be excluded. It should be borne in mind that both the substances mentioned are very poisonous and must be kept out of the reach of children or irresponsible persons.

It cannot be pointed out too often how large a part is played by weeds in the harbourage of insect pests. The oft quoted advice of "clean culture" may have become a platitude, but it is none the less true. The parent insects of cutworms, wireworms and leather-jackets, etc., are all attracted for egg-laying to those gardens which contain a plentiful supply of their favourite weeds. This is often too plainly illustrated in agricultural practice, perhaps particularly with pests of Cruciferous crops which migrate from wild Cruciferous weeds like Charlock, Hedge Mustard, etc., to the cultivated Crucifers growing near by. In many cases weeds act as "alternate host plants" for some of the most injurious insect pests "tiding them over" till the cultivated plant on which they prefer to feed is ready for them.

For the injurious soil insects briefly reviewed in this article cultural methods of control are best, and they consist largely in good hoeing and the destruction and eradication of weeds. The larvae and grub illustrated on the preceding page are all reproduced twice natural size. *K. M. S., Manchester.*

NOTICES OF BOOKS.

Sweet Peas.*

As everyone interested in the flower which its lovers, with a great deal of justification, term the "Queen of Annuals," is well aware, there has long been a need and place for a standard book on the Sweet Pea. The size and price of *Sweet Peas, Their History, Development and Culture*, by Chas. W. J. Unwin, encouraged the expectation that within its covers might be found the desired work. Perhaps, to disarm criticism, Mr. Unwin disclaims literary ability, relying on his skill and knowledge as a specialist with Sweet Peas. But the writer of a book for sale and public circulation cannot easily disregard responsibilities which may only be ignored when he has made discoveries of importance or desires to postulate a new doctrine, and even then, skilled assistance in stating the case would be of great advantage. That the book under notice needs editing will be perfectly obvious to the reader, even in the title which has no commas and is minus the "and" included above; while the reference to the "pernethiana" Rose in the preface does not inspire confidence.

For the History of the Sweet Pea itself Mr. Unwin refers to the most valuable investigation of the late Mr. S. B. Dicks, who left no stone unturned or spared himself in the endeavour to trace the flower back to its earliest appearance in herbaria and in gardens, and to definitely place its habitat. That, in spite of all his searches, there remained a certain element of doubt Mr. Dicks himself was well aware.

The pages devoted to the development of the Sweet Pea will not be entirely satisfactory to the reader. Any book of to-day on Sweet Peas which has no mention of such well-known raisers as Robert Bolton, Alex. Dickson and Sons, Dobbie and Co., Thos. Cullen and Sons, Andrew Ireland and E. W. King and Co. for examples, and which makes only a passing reference to J. Stevenson, is incomplete. This is particularly unfortunate in view of the fact that mention is made of numerous over-seas raisers of the winter-flowering type of Sweet Pea which the Floral Committee of the National Sweet Pea Society reported in 1923, is of very little use in this country.

In what may be termed its practical side, the book suffers also from the lack of editing, for the writer's remarks on trenching—always a difficult operation to describe understandably in writing—is likely to cause confusion in the minds of tyros. One of the paragraphs on manures needs revision, for we fail to see how "too light" a dressing of any form of manure can be harmful. As Mr. Unwin indicates in one paragraph lime is of immense importance in the fertilisation of the soil. We are in entire agreement with the warning, in the concluding paragraphs, against the temptation to make the soil over-rich.

The cultivation of Sweet Peas for exhibition occupies a considerable proportion of the book, and, although those who attend the principal shows will not recognise Mr. Unwin as a competitive exhibitor, his remarks are well worth reading. We suspect, however, that the general reader, who is in the majority, would have preferred a little more advice on general garden culture.

The chapter on Seed Growing and Saving is very interesting and will be read by the amateur with much interest, while he will be reassured by the mention of the care and attention that are exercised by all the reputable growers to ensure true stocks and "live" seeds.

While the review of the popular varieties of the moment is interesting and evidently written in the proper calm judicial spirit, we question whether their discussion justifies the space occupied. We feel that for lists of varieties of merit the Sweet Pea lover might well have been referred to the lists annually revised and published by the National Sweet Pea Society. The tabulated list of varieties, however, is excellent, and should prove to be very helpful to amateurs.

The much-debated question of the fragrance in present-day Sweet Peas is pleasantly discussed in a charming chapter on Sweet Peas of the Future, though we incline to the opinion that the public will insist on increased fragrance—if so, it is evident, from Mr. Unwin's remarks, that the raisers will endeavour to meet the demand.

The various half-tone illustrations and line drawings tell their stories well, and the book has an attractive colour reproduction of Sweet Peas on its "jacket" which kindly hides the one depicted on the front cover of the book.

Ornamental Trees for Amateurs.*

This work, by Mr. W. J. Bean, Curator of the Royal Botanic Gardens, Kew, is a companion volume to *Shrubs for Amateurs*, published some two years ago. The book runs to 122 pages, and in it the author has managed to condense a vast amount of information that will be found to be of the greatest value to those who, knowing nothing of the subject, wish to turn their attention to the cultivation of ornamental trees. In the early part, pages are devoted to various cultural operations with short lists of the best trees for various purposes. Then come short descriptions of the best ornamental trees arranged in alphabetical sequence. The amateur will be relieved to know that the book is written in a way that it is easily understood, and that it is free from confusing technical terms. There are fifteen excellent full page illustrations, but, unfortunately, a printer's error at page 24 makes a flowering Pyrus appear as Pyrus Scheideckeri in fruit.

FRUIT GARDEN.

MULCHING FRUIT TREES.

The value of mulching fruit trees, and especially those that have been recently planted, cannot be too strongly emphasised. So soon as the spring is well advanced drying winds are often prevalent and, in the case of shallow soils, roots of fruit trees soon experience a deficiency of moisture in the soil and at a time when the trees need plenty of moisture to develop their growth.

In the case of newly-planted trees, many of the young roots are destroyed in the process of transplanting, and until a number of these feeding roots develop the tree experiences great difficulty in obtaining an adequate supply of moisture, which is accentuated in times of drought.

Apart from the benefit of keeping the roots cool and moist, the mulching material will provide food and help to stimulate growth, thus giving strength at a time when the fruits are setting. In the case of certain bush fruits, with which Rasperries may be included, mulching is of great benefit, and such surface-rooting kinds as Black Currants derive great benefit from a mulch of littery manure or similar material.

Before the mulching is applied, a dressing of lime should be added to the soil, as this will not only benefit the trees, but serves to keep slugs, wireworms and similar pests in check. In the case of such top fruits as Apples and Pears, if the soil becomes very dry after the blossoms appear, the crop is bound to suffer. Wall trees are especially liable to suffer a check from drought in hot weather, and in their case the mulch should be applied after the work of pruning and cleansing the trees is completed. Beside manure, leaves, decayed vegetable refuse, old potting soil, peat-moss, and lawn mowings are all of value for mulching hard-wooded fruits; the two last-named materials should be used with discretion when mulching tender subjects. Seaweed, which is often available in maritime districts in large quantities, makes excellent material for top-dressing the smaller fruits. Spent Hops are easily obtainable in some districts and these also are valuable for the purpose.

Those who are unable to find time or material for mulching their fruit trees should take care to keep the surface soil well-stirred to promote a layer of fine earth over the roots, as this in itself will hinder evaporation of soil moisture. Care must be taken to hoe the ground again directly rain has fallen, for when such dry soil is moistened it has a tendency to cake and become consolidated again. *R.*

THE CROPPING OF PLUMS.

The prospects for a good Plum crop are, so far, very favourable and as the trees have not borne freely for a year or two, a good crop of Plums may be said to be overdue. In the best of Plum seasons many trees often fail to fruit, and one of the chief reasons of this is allowing the roots to develop without restriction, this resulting in the trees making strong, sappy shoots and much infertile wood. The members of the Gage family especially need this attention; certain successful growers resort to the practice of lifting their wall trees at intervals of a few years for the special purpose of checking strong root development. If this is done and the ground liberally dusted with lime, superphosphate, basic slag, bone meal, or even a dressing of lime or chalk, the trees will be greatly benefited in health, and there will be less loss of crop caused by dropping at the stoning period.

One cause of Plum trees failing to fruit is due to the particular variety being sterile to its own pollen, but there are some sorts which give a full crop when grown a considerable distance from any other members of the Plum family. Of these self-fertile varieties Victoria, Belle de Louvain and Cox's Emperor may be instanced. Belgian Purple is another good Plum for it is a good cropper and should be extensively planted, especially for market purposes. Purple Pershore is also a good market Plum and bears in most seasons, indeed, it crops so abundantly in certain years as to endanger the life of the tree through exhaustion. This Plum may be grown as a bush, half-standard or standard.

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* *Sweet Peas their History Development Culture.* By Charles W. J. Unwin. W. Heffer and Sons, Ltd., Cambridge. Price 5s. net.

* *Ornamental Trees for Amateurs.* By W. J. Bean. Published by Country Life, Ltd., price 5s. net.

Blue Rock is a variety which makes clean growth and gives an early crop, in succession to Early Prolific, the Plums being of intense colour with a rich bloom. This variety is both hardy and prolific and may be trained in any system, but probably the best results are obtained from half-standards and bush trees; it responds to either the short- or long-spur system of pruning. Trees planted in north-east aspects will give good crops, and this variety is also suitable for growing on west walls. *Pomona.*

FRUIT REGISTER.

LATE PEARS.

As a rule, the supply of Pears in private establishments is plentiful from September to early January, but with judicious planting and careful selection of varieties there is no reason why the season should not be extended to the end of March or even to the end of April. The varieties enumerated below will crop successfully as espalier- or cordon-trained specimens.

A south-east, south-west, east or west aspect is most suitable. The border in which the trees are planted should be well-drained, the soil sweet and enriched with a fair amount of basic slag, bone meal and potash.

Doyenné Georges Boucher is a large yellow russeted variety. The fruits are juicy and sweet; the growth of the tree is strong and upright. This Pear has a great reputation in France, where it is styled a late Doyenné du Comice. It is a very late keeper, retaining its freshness until April.

Nec Plus Meuris is a greenish-yellow Pear covered with light russet. The flesh is pale yellow, melting and aromatic. This also is a valuable Pear, owing to its freedom in cropping and late season of ripening. The fruit is small, oval and uneven in outline. The flavour is exceedingly good. This variety must not be confused with Beurré d'Anjou.

President Barabe is a sweet and highly-flavoured Pear, and the tree is fertile. The fruits keep well until the end of March, retaining their freshness for a very long period. They are of medium size and coloured greenish yellow.

Olivier de Serres is not pyriform in contour, but flattish. It is a Pear of medium size and entirely covered with russet. The tree is a sure cropper; this Pear is a most reliable late sort and although its appearance is not particularly inviting, the white flesh is melting, sugary and very juicy. Kept under cool conditions this Pear is at its best from the end of March to mid-April.

Josephine de Malines is one of the latest of Pears, also a variety of good quality. The fruit is small and has a greenish-yellow skin. The flesh is juicy, sweet, and delicious. The tree is an immense cropper and does well trained as a half-standard. This variety has another good quality, for it ripens after January until May in batches, so that it is available over several months.

Beurré de Naghin is one of the most precocious fruiting of Pears, and I have seen so many as nine large fruits on a three-year-old tree and I once counted five fruits on a two-year-old tree. This variety should be grown on the Quince stock or the flavour will be inferior. The fruit is large, roundish, and in colour golden yellow. The flesh is juicy and melting. Grown with Conference, as pot specimens, fine crops may be assured under glass. The fruits keep until mid-March.

Beurré Dubuisson is a very large, long, oval fruit, almost covered with fine golden russet, and a pale flush. The flesh is nearly white, aromatic and very melting. The tree is of dwarf habit and crops very freely. *G. Lovelock.*

VEGETABLE GARDEN.

BEETROOT.

BEETROOT is an excellent vegetable and may be either boiled or baked and eaten with cold meat; it is also an important ingredient of salads, and forms a valuable crop of the kitchen garden.

Like all deep-rooting crops, Beet requires to be grown in deep soil. In shallow land the roots are very liable to fork, but in a deep, free, open soil Beets make one straight root from eighteen inches to two feet in length. I generally grow my Beetroot and Carrots on the same piece of ground.

During the winter or early spring the ground is trenched two feet deep, and at the same time a very little thoroughly decayed manure is mixed with it. Soil that was heavily manured for a previous crop needs no manuring, because fresh dung has a tendency to cause the roots to fork and thus spoil them for the table.

Previous to sowing the seed the surface of the ground should be broken with a fork, and turned over two or three times when it is dry. After this it will be possible to promote a fine tilth and render the making of the drills an easy matter.

It is very necessary not to sow the seeds too early; the last week in April is a suitable time to sow the seeds for the maincrop. A small sowing may be made a fortnight earlier than this if a few early roots are wanted, and many rows may be sown later than the end of April, as young, tender roots are to be preferred to coarse ones.

An exposed part of the kitchen garden is better suited to Beet than a shaded place. The seeds should be sown in drills made fifteen inches apart, and about one inch deep. The seeds are much larger than those of many other vegetables, and in clusters. Two or three seeds dropped together at ten inches apart are sufficient to produce a crop. In covering the seeds the soil should be pressed firmly with a rake. The seeds are not long in germinating, and so soon as the young plants are distinctly seen the soil along the row should be loosened with a hoe. When the young plants are two inches high they should be reduced to two in each spot. Hoe again after this, and when the plants are four inches high they should be thinned to one at each ten inches. Hoe again, and continue to do so at intervals of a fortnight until the leaves have met in the rows; after this the crop will mature without further attention.

There are many excellent varieties both of the globe and long-rooted types. The globe or round Beet is best for early sowing, and excellent sorts of this section are Globe, Early Model, Red Globe and Egyptian Turnip-rooted. Of the long Beets, Cheltenham Green-leaved, Pragnell's Exhibition, Perfection, Covent Garden Red and Dell's Black-leaved are reliable sorts.

Beetroot will not keep sound in the open ground throughout the winter and should be lifted and stored. The best time to lift the crop is about the end of October or early in November. The roots require to be dug very carefully, because when they are in the least broken the sap exudes and the colour is spoiled when the roots are cooked. For this reason the leaves should never be cut close to the crown, but three inches from it; the best method is to remove the foliage by twisting it.

The roots should only be harvested when the soil is dry, and no attempt should be made to clean the soil off them as they are lifted, but after they have been spread out in an open shed for a few days to become partially dry the roughest of the soil may be rubbed off with the hands, and the roots stored in layers among dry sand in a cool shed or cellar from which frost may be excluded.

At this period of the year many of the old roots begin to sprout at the crowns. These growths should be rubbed off when the roots are turned, and they should not be in such large heaps as they were at first, as close packing favours both growth and decay. *James A. Paice.*

HOME CORRESPONDENCE.

Acaena Buchananii.—I am unable to endorse Mr. Arnott's commendation of this herb and its near relative A. microphylla (page 170). In fact, I have spent much time and lost patience in endeavouring to get rid of them, for they spread extravagantly and root interminably among the stones of a retaining wall. It is true that they form a pretty carpet; but their flowers resolve themselves into burrs of such adhesive quality that, let them get into the hair of any dog or other animal, and the only means of riddance is to cut the hair clean off. Perhaps Mr. Arnott may retort that a dog has no business in a garden; but that is a counsel of perfection; if a rabbit gets in, as rabbits will at times, a dog is essential for its execution. Anyhow, I prefer a carpeting plant without burrs, say Veronica filiformis. *Herbert Maxwell.*

Does Frost Kill Insects ?—In connection with the note by *J. E. L.* in your issue of February 20, it may be as well to point out that snails and slugs are in no sense insects, although the Americans class them colloquially, with a good many other small creatures, as "bugs"! That "phylum" of the animal kingdom known as Arthropoda consists of the crustacea (crabs, lobsters, waterfleas, woodlice, and the extinct trilobites), Onychophora (Peripatus, a sort of missing link); Tardigrada (water-bears), Arachnoidea (spiders, mites and ticks); Myriapoda (millepedes and centipedes); and Insecta (ants, bees, wasps, fleas, bugs, lice and all the various "flies"). Insects are known by having their bodies divided into rings or segments, which are arranged or modified in such a way that the body in the imago or perfect state is apparently divided into three parts; head, bearing eyes (if any), feelers or antennae and jaws, thorax, bearing two or four wings, and never more than six legs; abdomen, without legs but with the reproductive organs, sting, or egg-laying apparatus. This is the normal condition of insects. Spiders have eight legs; centipedes many. Snails and slugs belong to the mollusca, a separate "phylum." *C. Nicholson.*

Tetrachlorethane as a Glasshouse Fumigant.—I have read with interest recent correspondence on fumigating with tetrachlorethane in *The Gardeners' Chronicle*, and particularly the article from Mr. Fox Wilson, of Wisley (vol. LXXIX, p. 138). This is particularly interesting as his results so closely resemble those obtained by us at Messrs. Watkins and Simpson's Trial Grounds at Feltham. Here we have carried on fumigation with tetrachlorethane somewhat extensively. Of Mr. Fox Wilson's list A, (*i.e.*, plants which may be treated safely with this fumigant) we have tried the following, and have also found them quite safe:—Antirrhinum, Asparagus plumosus, Carnation, Fuchsia, Primula malacoides, Primula obconica, Tomato and Cucumber. We were surprised to read that Mr. Grigor Roy has found the last mentioned damaged (vol. LXXIX, p. 160), for we have repeatedly fumigated this subject with perfect safety. In addition to these we have found the following quite unharmed:—Cyclamen, Schizanthus, Begonia semperflorens, Stocks, Gilia coronopifolia, Gilia Beyrichiana, Gerbera, Pyrethrum aureum, Wallflower, Celosia, Petunia, Browallia viscosa, Solanum, Hibiscus, Rivina humulis, Calceolaria, Musk and Lettuce. Of List B. (*i.e.*, plants which are damaged by this fumigant), we have tried the following and have also found them damaged:—Chrysanthemum, Dahlia, Cineraria and Salvia. We find with regard to the last that Salvia patens is "safe," if the fumigation is not overdone, and also that S. splendens var. Harbinger is not so susceptible to damage as some other varieties of S. splendens. Coleus is in the "safe" list, but we have found that the blue-flowered Coleus thyrsoideus is badly damaged. Pelargoniums (Cape) are regarded as "unsafe," but we have found the bedding varieties of Pelargoniums, such as Paul Crampel, receive no harm. The results are the same as those obtained at Wisley, the only apparent difference being in the cases of Coleus and Pelargoniums. This is, however, partly explained by the fact that Cape Pelargoniums were used at Wisley, and we used bedding varieties: and very probably Mr. Fox Wilson did not test Coleus thyrsoideus. The similarity of the results and the additional list of plants found "safe" with us may be of interest to your readers. *A. Donald Blaxill, Trial Grounds, Twickenham.*

Parsnips.—On reading Mr. Copley's article on the cultivation of Parsnips on page 160, I was surprised that he recommended the sowing of one ounce of seed in a row forty feet long. If this is not an error inadvertently made by Mr. Copley, I suggest that he is guilty of the extravagance which was rightly condemned by the President of the Royal Caledonian Horticultural Society (see page 162). Further, his instructions to sow one-and-a-half inches deep cannot be considered good practice, and I am of the opinion that one ounce of seed, if sown half-an-inch deep, would be sufficient for a row four hundred feet long. This would provide a good "stand," and would obviate the necessity of stressing the importance of timely thinning. Personally, I wonder whether the Parsnip is of any economic value, except to provide business for the vendors of remedies for indigestion. *F. Baker, N.D.H., Portsmouth.*

Aucuba japonica variegata.—Those who are interested in the correspondence regarding the sex of variegated forms of Aucuba japonica will find some illuminating matter in the *List of Plants Certificated by the Royal Horticultural Society.* From that epitome of the history of fashions in garden plants from 1859 to the present time, it will be found that twenty-three varieties of Aucuba japonica received awards, mostly First-Class Certificates, between 1861 and 1873, but mostly in the early part of that period. It will further be found that the variegated varieties among them included both staminate and pistillate forms. *F. J. C.*

Standard Portugal Laurels.—The reference to standard Laurels on p. 147, recalls to memory that at the time I took charge of the Hendre Gardens there was on either side of a wall in the pleasure grounds a row of these trees that were destroyed, according to my experience, in an unusual manner. The trees had well-formed, clipped heads, some four feet in diameter, with stems of about four feet. The Hendre pleasure grounds are situated in a low part near a stream where late frosts are prevalent in spring, and so severe are these at times, that on one occasion after the sap of the trees had become active, they caused the stems of the Laurels to split to such an extent that the trees were killed. This reminds me that on one occasion I noticed on the roadside near Abergavenny the bark on the stems of some forest trees split to a considerable extent, caused, probably, by similar means. *Thos. Coomber.*

Primula malacoides with Double Flowers.—I enclose a photograph of the double form of Primula malacoides Princess Mary which I have had for three seasons. I consider it far superior to the single form for decorative purposes, each flower being perfectly double with the colour exactly as in the variety Princess Mary. The plant photographed carries twenty-two flower spikes which have two or three tiers of bloom; it is producing seed pods freely and these are swelling up. This particular specimen has not produced one single flower, but other plants which I have produce double flowers but show more reversion to the single form. *John F. Hanmer, The Gardes, Conway.*

[The photograph which Mr. Hanmer kindly sent was not suitable for reproduction. Double-flowered and semi-double forms of Primula malacoides are in commerce, and although not quite so dainty as the newer single varieties, they are useful decorative subjects and make a strong appeal to those who are fond of double flowers. It is usual for double flowers to last longer than single ones, and this is an advantage when plants are used for conservatory and house decoration. Eds.]

SOCIETIES.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

Thursday, March 4.— *Committee Present:* R. Ashworth, Esq. (in the chair), Messrs. C. Branch, A. Coningsby, D. A. Cowan, J. Cypher, J. Evans, G. Giles, A. Keeling and H. Arthur (Secretary).

First-Class Certificates.

Laelio-Cattleya General Maude var. The Premier.—A magnificent flower of perfect shape. The sepals and petals are very broad and of a rich mauve colour; the lip is rich purple-crimson, the throat being lined with gold stripes. A Silver-Gilt Medal was also awarded for this variety.

Cypripedium Robert Paterson, Gratrix's variety.—A fine flower with a white dorsal sepal having a green base and spotted with reddish purple; the petals are broad. Also awarded a Silver Medal. Both these plants were shown by S. Gratrix, Esq.

Cattleya Enid var. Duchess of York.—This variety has pure white sepals and petals and a richly coloured lip. From J. B. Adamson, Esq.

Odontioda Joiceyi var. John Cowan (Oda. Coronation × Odm. promerens).—The sepals and petals of this fine variety are rich purple-maroon with white margins; the lip is white with a maroon blotch and yellow crest. A Silver-gilt Medal was also awarded. From J. J. Bolton, Esq.

Cypripedium Gwen Hannen var. Field Marshal—The best form of this very large hybrid: the dorsal sepal measures four-and-a-quarter inches across. The base of the latter is yellowish-green with fine spots and a broad white margin. The broad petals are also yellowish-green and the lip is of the same colour. A Silver Medal was also awarded. From Messrs. Stuart Low and Co.

Awards of Merit.

Cypripedium Robert Paterson var. Westminster; Odontioda Lady Veitch (Cooksonii × Mars); O. Mount Pleasant (Odm. Louise × Oda. Madeline). From H. T. Pitt, Esq.

Cymbidium Aurigia and *C. Aurigia The Warren variety.* From the Hon. G. E. Vestey.

Dendrobium T. B. Armstrong (Lady Colman × Apollo grandiflorum). From S. Gratrix, Esq.

Groups.

A Gold Medal was awarded to S. Gratrix, Esq., West Point (gr. Mr. C. Branch), for a miscellaneous group of Orchids.

The Hon. G. E. Vestey, Southport (gr. Mr. B. Collins), was also awarded a Gold Medal for a group of Cymbidiums in great variety, the whole being considered one of the finest exhibits of Cymbidiums seen in the north.

Silver-gilt Medals were awarded to groups staged by J. B. Adamson, Esq., Blackpool (gr. Mr. R. Taylor), and Messrs. J. Cypher and Sons, Cheltenham, respectively.

H. T. Pitt, Esq., London (gr. Mr. F. W. Thurgood), staged a group for which a Large Silver Medal was awarded.

GUILDFORD AND DISTRICT GARDENERS'.

Of the meetings arranged by this association, the best attended of the season was the one held in February, when Mr. J. A. Kirkwood, gardener to the Duke of Sutherland, Sutton Place, delivered a lecture on "The Making and Upkeep of a Small Lawn." In his treatment of the subject, Mr. Kirkwood covered a very wide field and gave valuable information on lawns, both large and small. He explained the advantages and disadvantages of turf-laid and of seed-sown lawns, setting them one against the other. In either case the need for proper ground work was pointed out, as upon this important matter the future condition of the lawn would largely depend. The destruction of pests and the general treatment in regard to mowing, rolling, etc., were all dealt with in detail.

In proposing a vote of thanks both the President, Alderman W. T. Patrick, and Mr. Tylecote, the Show Secretary, spoke of the valuable services rendered to the Association by Mr. Kirkwood as a member of the committee and in an advisory capacity; reference was also made to the interest he had taken in the monthly journal and his unfailing readiness to render assistance to the editor on every possible occasion.

On February 16, a meeting was held at Onslow Village, a mile or two out of the town. On this occasion one of the residents, Mr. Hirst, occupied the chair, and Mr. Middleton, of the Surrey County Council Horticultural Committee, was the speaker. His address was both interesting and helpful, especially in this new district, occupied mostly by men whose business engagements take them to London every day. Every house here stands in its own garden, and a talk such as Mr. Middleton gave, was helpful to every man and woman present, whether they knew little or much of the matter in hand.—"The Cultivation of Vegetables." He urged everybody, whether the garden was large or small, to work to a plan, divide the plot into sections and follow a prescribed rotation to get the best results.

SPALDING AND DISTRICT BULB GROWERS'.

Many new varieties of Daffodils were exhibited at the show of forced flowers, held in the Corn Exchange at Spalding, on Saturday, February 27, under the auspices of the Spalding and District Market Gardeners' and Bulb Growers' Association. Mr. Leak, of Wisbech, officiated as judge.

The Parsons Challenge Cup for the best exhibit in the show was awarded Messrs. J. T. White and Son, of Little London, Spalding, whose stand included some remarkable Daffodils and Tulips. Some new Daffodils were conspicuous on account of their large trumpets and exceptionally tall, strong stems. Among the Tulips on Messrs. J. T. White and Son's stand were some fine specimens of Keizer Kroon and Louis XIV. The piece of plate value five guineas, given by the President (Mr. A. W. White) for the second best exhibit in the show went to Mr. O. W. D'Alcorn, of Spalding, and new varieties on his stand included Aureole, Emerson, Medusa and Grace Forbes, the last being a new variety for outdoor commercial work. Mr. D'Alcorn also showed a white Daffodil, Ernest Krelage.

The following were the awards:—Parsons Challenge Cup for the best exhibit in the show, Messrs. J. T. White and Son, Spalding; President's Plate, for second best exhibit in the show, Mr. O. W. D'Alcorn, Spalding. Early Tulips, Mr. Dearnley, Spalding; Collection of Tulips, Messrs. J. T. White and Son; Collection of Narcissi, Mr. A. T. Royce's Executors; Cut Narcissi, Mr. Bert Baxter, Spalding; Box of Trumpet Narcissi, tied and packed for market: first, Messrs. J. T. White and Son, Spalding; second, Mr. Fred Baxter, Spalding. Box of any other variety: Mr. William Groom, Spalding (Sir Watkin). Bunch of Forced Flowers, tied for market: first, Mr. Frank Clark, Spalding; second, Mr. G. Lappin, Spalding. Group of Forced Flowers: first, Messrs. J. T. White and Son; second, Mr. O. W. D'Alcorn.

About a hundred members and friends of the Association assembled at the Masonic Hall, Spalding, on the occasion of the annual dinner.

The chair was taken by the President (Mr. A. W. White), who was supported by Mr. W. A. Atton (Chairman of the Spalding Urban Council), Mr. R. W. Hastings (Clerk to the Urban Council), Capt. J. G. Wallace, of the Kirton Agricultural Institute, and others. "The Association" was proposed by Mr. R. W. Hastings, who congratulated the members on all they had done, not only for the bulb industry, but also for the district. Mr. A. W. White, replying, said that they had a large number of young men with them that night, and that was what they wanted in the bulb trade—the right men at the base of the industry. "The Town and Trade of Spalding" was proposed by Mr. W. H. Birch, and Mr. W. A. Atton responded.

GLASGOW AND WEST OF SCOTLAND HORTICULTURAL.

MR. Charles Young presided over a largely attended meeting of the members of the Glasgow and West of Scotland Horticultural Society held in the Christian Institute on Wednesday the 10th inst, when Mr. Thomas Heron, Kinlock Nursery, Cambuslang, delivered a lecture on "The Culture of Vegetables." The subject was discussed more from the point of view of the exhibitor, but occasional brief reference was also made to the requirements of the gardener who only raised supplies for household use. The lecturer's advice and suggestions were based on his own experience and the cultural needs of each vegetable that were necessary in the production of specimens of high quality. After commenting on the improvement of seedsmen's stocks, he emphasised the value of early and deep cultivation. As texture, rainfall and other factors had to be considered no hard and fast rule could be laid down as a guide to digging operations, but in the case of heavy loam or clay he recommended trenching to the depth of three feet in autumn.

The culture of Peas, Beans, Leeks, Onions, Beet, Parsnips and Carrots, was reviewed in turn and his advice regarding Turnips was: Do not sow much at one time, subject the young seedlings to double thinning, and always water in the evening. Celery, being a gross feeder, could hardly be over-watered, while there was nothing to equal dressings of kitchen salt for imparting crispness and flavour to the roots and at the same time keep away slugs and insect pests. The remainder of the lecture was devoted to Brassicas, Lettuces and Potatos for exhibition, and at the close Mr. Dagg made reference to the prevalence of Celery rust in Ayrshire gardens last year. Mr. Heron, in reply, said the trouble was caused by stagnation of the soil resulting from the want of drainage.

THE ORCHID CLUB.

THE outstanding feature of the meeting of the Orchid Club held on the 12th inst. was the magnificent group of Cymbidiums shown by Mr. Cussons, a display which excited universal admiration and discussion.

PREMIER DIPLOMA.

Cymbidium Alexanderi, Cusson's var.—The finest type of rose-coloured Cymbidium; the plant carried a semi-erect spike of ten large, well-displayed flowers, the sepals and petals of which are a uniform rose-purple. The large lip is white with a group of confluent blood-red spots and dots running into the throat.

DIPLOMAS OF MERIT.

Cymbidium Golden Glow (parentage unknown).—The plant carried two large, arching spikes of thirty flowers, the latter being of good form and well-displayed. The sepals and petals are of pale greenish-yellow, the large lip golden-yellow with a median line and lateral zones of crimson dots.

C. Maydew (parentage unknown).—A round flower of medium size; the sepals and petals are of primrose-yellow faintly flushed with crimson. The lip is well-displayed, yellow, with a broad zone of bright red dots; the column is of a striking chrome-yellow colour.

C. Warbler, Cusson's var.—The plant carried a beautiful recumbent spike of seven flowers. The sepals are sea-green, the petals white in the outer parts and pale green at the base. The large, well-displayed lip is white with a zone of large crimson spots, and surmounted by a dark crimson column.

C. Alexanderi, Orange Queen.—A well-displayed flower of excellent shape; the sepals and petals are orange-yellow and the lip pale yellow with a marginal band of crimson dots.

All the above were shown by Mr. A. T. CUSSONS.

Odontoglossum crispum Stella var. grandis.—A large, white, star-shaped variety with beautifully fimbriated petals and a large, well-displayed lip with a few brown central spots. From Dr. CRAVEN MOORE.

Odm. Princess Yolando, Tyntesfield var.—The infloresence was a magnificent spike of eleven large, well-shaped flowers. The sepals and petals are royal purple with white, fimbriated edges; the large, well-formed lip is similar in colour to the petals.

Odm. Pyramus, Hardy's var.—A large, well-shaped flower; the sepals and petals are solid rose purple with clear white tips; the lip is purple with a white edge. The plant carried a graceful spike of eleven flowers.

Odontioda Hilda.—The plant bore a large spike of thirteen flowers, of a dark solid purple with a satiny sheen: the lip is of similar colour with a bright violet coloured apex.

These three were shown by Mrs. HARDY.

CERTIFICATE OF CULTURAL COMMENDATION.

To Mr. A. DAEGLEISH, for a group of Cymbidiums.

GROUPS.

A. T. CUSSONS, Esq. (gr. Mr. A. Daegleish), staged a magnificent group of well-grown Cymbidiums comprising upwards of fifty plants, several of which carried five spikes of flowers, the whole forming a fine bank of blossom. In addition to those which received diplomas severe other fine varieties were shown, together with many large plants of C. Pauwelsii and C. Alexanderi.

Sir WILLIAM THOM (gr. Mr. R. Williams), exhibited a good group of Dendrobiums, including many well-flowered plants of D. Dr. Hartley, D. Cybele, Athol House var., and D. nobile var. Thwaitesiae.

Mrs. HARDY staged a few Odontoglossums, the most noteworthy of which received Diplomas of Merit.

Dr. CRAVEN MOORE (gr. Mr. Gilden), exhibited a fine group, the centrepiece of which was a large pan of Ada aurantiaca together with many Odontiodas, Dendrobiums and Lycastes.

B. J. BECKTON, Esq. (gr. Mr. W. A. Stewart), put up an effectively staged group in which were a richly coloured Cymbidium Yellow Hammer, C. Imperial Prince, Laelia cinnabarina and L. harpophylla, and a new hybrid between these two finely-coloured Orchids showing the best characters of both parents; Masdevalliai gneo-Estradae, carrying over thirty flowers, the dainty Ponera juncifolia, the strange habited Trias picta, and many others.

F. T. PAUL, Esq., showed Odontonia Eurydice.

MORTON JACKSON, Esq., showed the pretty Saccolabium gemmatum.

ROYAL CALEDONIAN HORTICULTURAL.

THE ordinary monthly meeting of this Society was held at 5, St. Andrew Square, Edinburgh, on the 2nd inst., Mr. W. J. Thompson, president, in the chair. A lecture, illustrated by lantern slides, on "How Plants Grow," was delivered by Dr. R. J. D. Graham, Royal Botanic Garden, Edinburgh.

The exhibits were: Cyclamen, by Mr. D. EGGO, Larchgrove, Balerno (Gold Medal and Society's congratulations); Cyclamen, by Mr. GEORGE GODSMARK, Harmeny, Balerno (Gold Medal: Orchids, by Mr. MARQUIS, Inveresk Gate, Musselburgh (Silver Medal); Alpines, by Messrs. LAIRD AND DICKSON, Corstorphine (Silver Medal) Cactus-flowered Cinerarias, by Messrs. DOBBIE AND CO., Edinburgh (Cultural Certificate); Sweet Peas, by Mr. D. ARMSTRONG, The Drum, Gilmerton Alpines, by Messrs. CUNNINGHAM FRASER AND CO., LTD., Edinburgh; Rhododendrons and other shrubs, by Miss BARTY, Edinburgh; Ardisia crenulata, by EDINBURGH PUBLIC PARKS DEPARTMENT; Hyacinths, by Mr. W. J. THOMSON, Edinburgh; and horticultural implements made and used in China, by Mr. M'GREGOR, Public Parks Department, Shanghai.

READING AND DISTRICT GARDENERS'.

AT the meeting of this Society held on the 8th inst., a lecture on "Manures" was delivered by Mr. H. H. Cook, of the University College Gardens, Shinfield. Mr. F. G. Green, presided. The lecturer in his introductory remarks said that originally the term "to manure" was used in reference to hand tillage or working the land, but now the term manure is applied to any substance, which by its application, contributes to the fertility of the soil. Manures are classified as (*a*) artificial or chemical; (*b*) natural. Artificial or chemical manures are those which have come into use practically during recent years, such as nitrate of soda, kainit, basic slag, superphosphate, and sulphate of ammonia, whilst natural manures have been in use from the earliest times, and are represented by farmyard manure, stable manure, vegetable refuse, marl and chalk. Each manure was specially dealt with and much valuable advice was given as to its composition and proper use. A note of warning was given with regard to the using of artificial or chemical manures, as, if great care was not taken, much damage might result.

In the non-competitive section Mr. W. CHISLETT, Bill Hill Gardens, Wokingham, staged an excellent collection of nineteen varieties of Apples, illustrating the keeping qualities of the various varieties. The most prominent sorts were Tower of Glammis, Annie Elizabeth, New Hawthornden, Reinette du Canada, Tibbett's Pearmain, Winter Ribston and Winter Queening. This exhibit received the high commendation of the judges and the thanks of the members for placing before them such an educational display. A First Class Certificate was awarded to Mr. A. W. GOWER, Calcot Grange Gardens, for magnificent spikes of Richardias (Arum Lilies), and an Award of Merit to Mr. R. TURNER, Southview, Calcot, for Princess of Wales Violets. The judges directed special attention to several varieties of Apples shown by Mr. A. WEBB, Tilehurst.

For three flowering plants Mr. A. W. GOWER was the only competitor, and he was awarded first prize for well-flowered plants of Cineraria, Primula obconica and Cyclamen.

Obituary.

Lieut.-Col. H. V. Warrender, D.S.O.—Lieut.-Col. Hugh Warrender, who died at his house, High Grove, Eastcote, on the 8th inst., after a long and painful illness borne with characteristic courage, was one of those accomplished amateurs from whose active interest horticulture derives such benefit. Col. Warrender had many interests in life, but it was his garden which lay nearest his heart. His *forte* was the cultivation of plants and he brought to bear on it those practical and sympathetic qualities with which his friends were familiar. Few plants beat him, and those which did would have beaten anyone handicapped by the conditions under which he worked, for his case was typical of a great number of men who, for family or other reasons beyond their control, pursue the cultivation of a garden under conditions less favourable than they could wish. The clays of Middlesex do not provide an ideal foundation for a garden of precious plants, and the cold, clammy nature of the soil and the winter mists inevitable under the prevailing conditions all add to the trials every gardener has to face. But Col. Warrender made of High Grove a garden of happy plants. Though in earlier days keenly interested in Daffodils, it is probable that Lilies attracted Col. Warrender more than other plants, for he took up their cultivation about fifteen years ago with zest, and as illustrations in our columns show, had pursued it with remarkable success. His practical knowledge of the genus was considerable, and he was always glad to help those who had not gone so deeply into the management of Lilies as he had. Since the European war, in which Col. Warrender, then no longer a young man, served his country with conspicuous gallantry, he had for some years turned his attention to the newer Chinese Rhododendrons with promising results. Of catholic tastes, Col. Warrender had a keen eye for a good plant and an innate love of floral beauty; nothing escaped him and he took especial delight in the quiet appealing beauty with which nature has endowed so many of her humblest plants—Pyrola, for instance; and though often lamenting his lack of botanical knowledge, he had what, to the practical amateur is far more valuable—a first hand working acquaintance with the ways of plants gained in the school of experience. To his handling of them he brought all the sympathetic insight natural to a man of his training and disposition. To his many gardening friends, he was a delightful, lovable companion, tenacious of his own view but wisely tolerant of the views of others, scrupulously just and always generous. For many years Col. Warrender was a member of the Narcissus and Tulip Committee of the R.H.S., and latterly had served on one of the Floral Committees. His judgments were sound and always carried weight. He will be greatly missed and, could they but speak, by none more than the plants he loved so well.

John Ferguson.— We regret to learn of the death, a few days ago, of Mr. John Ferguson, F.S.A., Scot., who was well-known to lovers of the Saxifrage as the raiser of that pretty mossy variety, Fergusonii. Mr. Ferguson, who was a solicitor and held important public offices, had a lovely garden in Duns and grew a great variety of alpine and other hardy flowers. In addition to his knowledge of botany, which was unusually extensive, Mr. Ferguson was well-known as an archaeologist, and contributed several papers regarding his antiquarian researches to the Scottish Society of Antiquaries.

John W. Hamilton. — We have to record the death of Mr. John W. Hamilton of Oakmount Gardens, Lasswade, Midlothian,; the funeral took place on March 10. Mr. Hamilton was an able horticulturist, and did good service in his neighbourhood by his energetic and successful work as secretary of the Dalkeith and District Horticultural Society, an office which he had held for many years. He also took an active part in other public movements in the district, where he was very highly esteemed.

George Taylor.—It is with deep regret we learn of the death of Mr. George Taylor, who died very suddenly on Wednesday, March 10, at his home, 31, Brighton Road, Reading, the cause of death being heart failure. Mr. Taylor was for forty-two years engaged at the trial grounds of Messrs. Sutton and Sons, and retired on pension about five years ago. He was a keen, able, and well-informed cultivator, and belonged to the fine company of men whose combined labours carried their firm's name and reputation so far along the road of progress, and among whom the names of MacDonald, Martin, Lasham, Janes and others were and still are held in high esteem throughout the fraternity. Mr. A. G. Taylor, a son of our departed friend is still on Messrs. Sutton's staff and enjoys wide popularity among exhibitors, a great deal of his time being occupied in staging and attending his firm's exhibits at the leading provincial shows. His many friends will extend sympathy to him and the rest of the family in their sudden and grevious bereavement.

TRADE NOTES.

Readers requiring information and advice respecting Patents, Trade Marks or Designs should apply to Messrs. Rayner and Co., Patent Agents, of 5, Chancery Lane, London, who will give free advice to readers mentioning this paper.

The limestone supplied by the Rockraven Garden Stone Company is obtained from the Yorkshire highlands. The rocks are not quarried, but gathered where they have lain exposed to the storms of centuries. They are weathered into quaint and delightful pockets, ledges and fissures, and so adapted are they to the needs of alpine subjects that in the flowering seasons whole acres of these highlands are themselves a vast rock garden. The Company does not supply plants for the rock garden but concentrates solely on the supply of such stone as will give the plants their best opportunity to thrive.

NEW HORTICULTURAL INVENTIONS.

These particulars of New Patents of interest to readers have been selected from the Official Journal of Patents, and are published by special permission of the Controller of His Majesty's Stationery Office.

Latest Patent Applications.

3,943.—Hemming, C. S.—Garden shears, etc. February 11th.

4,006.—Ransomes, Sims and Jefferies, Ltd.—Electrically driven lawn mowers. February 11th.

4,106.—Stonehouse Works Co.—Wood Supports for Rose trees, etc. February 12th.

4,503.—McCaskill, J. C. H.—Carriers for flowers, etc. February 5th.

3,479.—Marden, G. Y.—Means for protecting plants, etc. February 6th.

Specifications Published.

246,690.—Oakley, E. C. F.—Shearing devices for pruning hedges, trees and the like.

246,204.—Edwards, H. R.—Apparatus for destroying weeds, particularly aquatic weeds and plants.

246,068.—Stahel, G. and Varsany , G.—Process for sorting seeds.

245,671.—Flach, J.—Method of and apparatus for preserving fruits, vegetables and the like.

Printed copies of the full Published Specifications may be obtained from the Patent Office, 25, Southampton Buildings, London, W.C.2., at the uniform price of 1/- each.

Abstract Published.

Greenhouse Painting. *Patent No.* 243,725

A device for painting greenhouse bars has been protected in this country by Mr. R. S. Thompson, of 24, Detroit Road, Bay Village, Ohio, U.S.A. The appliance consists of a V-shaped carriage, supporting a paint reservoir and brushes, and which is guided along the bars by means of channel guides and a handle. The brushes are mounted on the sides of the carriage, as by studs engaging slots, so as to move freely up and down and the bristles project through an opening running the whole length of the bottom of the carriage. The brushes have weights inserted in their heads, and the bristles are compressed towards the bar by the sharply inclined portion of the carriage sides. Paint is supplied from the reservoir through a pipe, preferably to the bar direct, the brushes having recesses to allow this.

The paint supply is controlled by a valve.

SCHEDULE RECEIVED.

Brighton, Hove and Sussex Horticultural Society.—Spring Show to be held on April 14 and 15; Rose, Sweet Pea and Carnation Show on July 7 and 8; and Chrysamthemum Show on November 10, 11 and 12. Secretary, Mr. H .J. Bingham, 128, Queen's Park Road, Brighton.

TRADE MARKS.

This list of Trade Marks of interest to readers has been selected from the Official Trade Marks Journal, and is published by permission of the Controller of His Majesty's Stationery Office.

T. P. WADE.

464,995.—Rhubarb.—T. P. Wade, Stourton Lodge, Wakefield Road, Leeds. February 10th.

INSEC-A-TUS.

462,389.—Insect Destroying Preparations.—W. H. Salt and Son, 35, Oakley Street, Lambeth, London, S.E.1. February 5th.

KOLYNOS.

462,456.—The word Kolynos surrounded by a Laurel wreath for chemical substances used for agricultural and horticultural purposes.—Kolynos Incorporated, 180, Meadow Street, Newhaven, Connecticut, U.S.A. January 27th.

ANSWERS TO CORRESPONDENTS.

Names of Fruit.—*W. E. H. H., Newton Abbot.* 1, Annie Elizabeth; 2, probably Newton Wonder. *A. S.* 1, Dredge's Fame; 2, Scarlet Pearmain; 3, Brabant Bellefleur; 4, Scarlet Nonpareil; 5, Hambledon Deux Ans; 6, Dean's Codlin; 7, Calville St. Sauveur. *V. S. D.* Probably Dumelow's Seedling (Wellington).

Names of Plants.—*C. W. A.* 1, Rhododendron ambiguum; 2 and 3, R. oreodoxa (this is a rather variable species); 4, an arboreum-caucasicum hybrid; 5, R. lutescens; 6, R. Falconeri; 7, a very beautiful Thomsonii hybrid; 8, R. ciliatum; 9, R. monosematum. *S. F. R.* Ornithogalum thyrsoides. *B. F.* 1, Daphne Mezereum; 2, Saxifraga cordata. *A. P.* Chionodoxa Luciliae. *W. S.* 1, Saxifraga cordata; 2, Coleus thyrsoideus; 3, species of Aster, send when in flower; 4, Omphalodes verna; 5, Mesembryanthemum cordifolium; 6, Tradescantia zebrina. *C. A.* Allium neapolitanum.

Peach Growths Damaged.—*W. G.* There is a fungus (Phoma) on the Peach twigs, but the general appearance of the latter suggests that something is amiss with the cultural conditions. It would be advisable, however, to cut off and burn all the shoots visibly affected with disease.

Wattle, Mimosa and Acacia.—*H. S. R.* Usage has sanctioned such a combination of names as the Green Wattle Mimosa of the settlers of Australia. This was named Acacia affinis, by Robert Sweet, but is properly A. dealbata, or at most only a slight variety of it. The shrub named A. affinis was introduced to this country in 1822, and again, under the name of A. dealbata in 1823 or 1824, for both dates are recorded. It was given this name by Link in the *Enumeration of the Plants at Berlin*, when the old genus, Mimosa, was broken up and divided into several genera, of which Acacia is one. Green Wattle Mimosa and Wattle Mimosa are therefore merely popular names for Acacia dealbata; the Mimosa which is now brought into this country—as flowering branches—in quantity from the south of Europe. The pollen grains of Mimosa are distinct, but those of Acacia are united in masses. Mimosa pudica, the Sensitive Plant, is the best known Mimosa in this country. The species of Acacia are common in greenhouses, but were more abundant forty years ago. Robinia is the False Acacia, a hardy tree that may easily be distinguished by its Pea-shaped flowers. The flowers of Acacia and Mimosa are very small, regular, and owe their beauty to the stamens, which are long.

Communications Received.—G. C. (Thanks for 2/- for R,G.O.F. Box).—S. H. D.—T. W. B.—C. H. H.—T. B.—C. P. R.—Dr. M. A.—T. B.—R. H. H.—G.R.B., Menton.—J. R.,—R. B.—Constant Reader.

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Average Mean Temperature for the ensuing week deduced from observations during the last fifty years at Greenwich, 45.2.

Actual Temperature—
The Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, March 24, 10 a.m. Bar. 30.0. Temp. 46 . Weather, Bright, with cold wind.

Lucerne for Garden Cultivation.

The great and deserved attention which is being directed to Lucerne as a farm crop provokes the interesting question whether this plant, the prolificness of which is well known, may be found to have any place in gardens. The question might seem a curious one were it not for the facts that the cost of manure—and of labour—is compelling not a few gardeners to consider revision of their customary routine. Where, for example, the kitchen garden is a large one and the stables no longer supply an adequate quantity of manure; where, moreover, owing to the growth of the travelling habit and the not infrequent decrease in the establishment, the problem of cropping the ground adequately with the labour available and at the same time maintaining its fertility, becomes very acute and difficult. Though artificial manures may supplement they cannot replace farmyard manure, and in few gardens is it possible to maintain the fertility of the soil without occasional and often frequent dressings of natural manure. Where Oak and Beech woods abound, leaf-mould may help to supply the deficiency caused by lack or high cost of farmyard manure. Where that source of supply fails and also where it does not much use may be made of well decomposed garden refuse, especially if the vegetable débris is constrained to rot down speedily by the use of the culture of micro-organisms designed, as we believe, by workers at Rothamsted for the purpose. A wise use of artificials—basic slag for a slow-acting phosphatic manure—particularly when combined with a potassic manure, will help to eke out the present generally meagre supplies of natural manures; and top dressings of nitrate of soda and winter dressings of sulphate of ammonia will give back to the soil the nitrogen of which it is deprived by growing crops and winter rains. But even so it becomes in some gardens a question for anxious consideration whether it would not be better to make sure of the highest possible yields in a part of the garden well done, than to be content with smaller yields over the whole area. Where there is plenty of labour and trenching can be practised systematically, the fertility of the whole area may still be maintained, for it is a profound truth that to work the ground (*manoeuvrer*) is to manure it. The more the ground is worked the more its potential stores of food are opened up and the less need be the expenditure of manures. Where, however, labour is insufficient, it is worth considering whether the garden as a whole would not be better and more economically run by growing, in a sequence of years, on one quarter of it, a crop to serve for green manure. If so, then the claims of Lucerne are worth considering. It is rich in nitrogen and enriches the nitrogen content of the soil. Lucerne should grow amazingly well on good garden soils. Where pigs and poultry are kept, it makes a valuable food and of course, except in cold districts, Lucerne will stand for several years. Once established it may be cut more than once in the year and, finally, when dug in, the ground should be in perfect condition for the growing of green crops—Brassicas for example. There remains only the question of inoculation. Unlike Clover which finds its bacterial mate everywhere on cultivated land in this country, Lucerne sometimes fails for lack of the nodule-producing organism without which it cannot fix nitrogen or make good growth. Experiments at Rothamsted, however, seem to have solved the problem and to have provided means of ensuring the inoculation of the seed at sowing time with the nodule-producing organism. Where, therefore, the peculiar conditions already referred to exist, it would be well worth trying—at first on a cautious scale—the use of Lucerne as a green-manure crop and that not only in the kitchen garden, but in the young orchard where grass has not yet been allowed to become established.

Daffodil Conference at Vincent Square.—A Conference will be held on the second day of the Daffodil Show which takes place on Tuesday and Wednesday, April 13 and 14, in the Royal Horticultural Hall at Vincent Square, Westminster. The Conference will be held in the Lecture Room, and the morning session, from 11.30 a.m. to 1 p.m., will be devoted to diseases of Daffodils; while in the afternoon, from 2.30 p.m., there will be discussions on the aims of Daffodil breeders, and the garden value of these popular spring flowers. It is hoped that Daffodil lovers will attend the Conference and add to the common stock of knowledge by joining in the discussion.

Kewites in America.—The annual meeting of the Association of Kew Gardeners in America was held on the 20th inst. The secretary is Mr. W. H. Judd, Arnold Arboretum, Boston, Mass., where another famous old Kewite, Mr. E. H. Wilson, is assistant-director.

La Quintinye Tercentenary.—It is just three hundred years since the birth of the famous French horticulturist, La Quintinye, who had so brilliant a career as gardener to the "Roi Soleil." Born in 1626, he was educated at a Jesuit seminary at Poitiers, afterwards proceeding to Paris to study law, in which career he attained much distinction. Later, he became tutor to the son of Tambonneau, President of the Chambre des Comptes, with whom he went to Italy, and spent many happy hours visiting the numerous fine gardens in and around Rome, finally deciding that horticulture was his vocation. On returning to Paris he persuaded Tambonneau to let him have the charge of his gardens, and devoted himself to their care and maintenance, besides forming plantations of fruits and vegetables for many distinguished people, including the Prince de Condé. La Quintinye visited England, and was presented to Charles II, who, it is said, offered him a princely salary to remain, and take service under him; but La Quintinye preferred to return to France, where Louis XIV gave him the charge of his own fruit and vegetable gardens. This was about 1670; but it was not until 1678 that he begun his principal work—the creation of the new "Potager du Roi," the site of which is now occupied by the Versailles Horticultural College. La Quintinye made a speciality of forcing, which was not then practised to any great extent. When the king enjoyed Asparagus in December, Radishes and Lettuce in January, Cauliflowers in March, and Strawberries in April, La Quintinye's fame spread far and wide, and he rose higher and higher in the royal esteem. He was one of the first in France to practice the espalier mode of training fruit trees, and also introduced new and revolutionary methods of pruning. He died, covered with honours, in 1688, sincerely and deeply mourned by his royal employer. He left behind him some rough notes, which were collected and published by his son, but they suffer from the defects common to most posthumous works, due to the absence of fearless cutting by a master hand. In spite, however, of prolixity and repetition, the notes are useful and interesting, and form an invaluable picture of the condition of horticulture at the end of the seventeenth century. We give these extracts from an article on the subject in our contemporary *La Revue Horticole*, of Paris, which also contains a striking portrait of La Quintinye—a reproduction of an engraving by Vermeulen from de la Mare's picture.

The Rhynie (Aberdeenshire) Chert Bed.—When Dr. William Mackie, formerly medical officer of health for Elgin, Morayshire, now of Glasgow, made his historic discovery some twelve years ago near the quaint, old-world village of Rhynie, Aberdeenshire, of what proved to be remains of the earliest known land plants, he called attention to the fact that where he had found the fossil plants there were also remains of crustacea. The matter was taken up by Mr. D. J. Scourfield, I.S.O., who has just given a very interesting account of his researches. After expressing grateful thanks to Dr. Mackie for the gift of sections of the fossil, Mr. Scourfield gives an elaborate description of male and female specimens of the crustacean, traces its development stages, and discusses its classification. Referring more particularly to the Rhynie Chert bed Mr. Scourfield states:—"The Chert bed of Middle, or possibly, Lower Old Red Sandstone age, discovered by Dr. Mackie (1914), at Rhynie Aberdeenshire, has become famous among palæobotanists on account of the beautifully preserved remains of the earliest known land plants, described by the late Dr. Kidston and Professor Lang (1917–21). In addition to the plants, however, the Rhynie Chert also contains animal remains, for the most part very small and in a very fragmentary condition, though the fragments themselves are in many cases exceedingly well-preserved. The vast majority of these remains are evidently crustacean in character, and it was at first thought that they belonged to several, or at least, two, different species. Subsequent research, however, convinced Mr. Scourfield that all the crustacean remains so far seen in the Rhynie Chert belong to the one species, Lapidocaris rhyniensis. Next to the crustacean remains in order of abundance, but very far behind in actual number, are the traces of small Arachnids. These, so far as at present discovered, have been described by Mr. S. Hirst (1923), and comprise a true mite, a small, spider-like creature, and several forms belonging to the extinct order Anthracomarti. A few fragments of other animals have also been seen, but they are too vague and uncertain to allow of description at present. Strangely enough, although the Chert evidently represents a fossilised swamp, or the shallow margin of a lake, no certain traces of any of the characteristic microscopic organisms of such situations such as desmids, diatoms, peridinians, rhizopods, etc., have been seen, although constantly looked for. When it is remembered that in addition to the cellular structure of the larger plants delicate hyphal threads and spores are also found most perfectly preserved in the Chert, this absence of all representatives of our modern "pond life" organisms is very strange. Summing up, Mr. Scourfield considers the explanation is possibly to be found in the theory, which in fact has already been advanced to account for the origin of the Chert, that the water in which the Chert bed was formed came from a hot spring or geyzer, and was highly charged with silica. In this case the paucity of aquatic life would be comparable with what is known to occur in concentrated saline waters, and the presence of only a single species of crustacea would easily be explained on the assumption that it was the only form which could adapt itself to the very special conditions of the environment.

New Curator of the Museums at Kew.—We understand that Mr. William Dallimore is to succeed Mr. Hillier as curator of the Museums at the Royal Garden, Kew. In our issue of June 13, 1925, we published a portrait and appreciation of Mr. W. Dallimore, who has had a long period of service at Kew, while in our issue of June 2, 1923, we gave a portrait of Mr. J. M. Hillier and an account of his work. All who know him will wish Mr. Hillier the best of health and happiness in his well-merited retirement.

Royal Horticultural Society's Gardens, Wisley.—As many spring-flowering plants are providing attractions at Wisley, our readers may wish to know the best means of reaching the Royal Horticultural Society's Gardens. Wisley lies a few yards off the Portsmouth Road, on the banks of the Wey, about a mile-and-a-half on the London side of Ripley, and about midway between two lines of the Southern Railway from Waterloo. Four stations, two on the Waterloo-Salisbury line, viz., Byfleet and Weybridge, and two on the "new" Guildford line (served by electric trains), viz., Effingham and Horsley, are each about four or five miles from the entrance to the Gardens. The walks from all are pleasant ones, but too long for many. Taxicabs may be had always at Byfleet snd Weybridge, but at Horsley and Effingham only by ordering beforehand. The London General Omnibus Co. runs an hourly service of motor buses (No. 115) between Kingston and Guildford, and their route passes within five minutes of the Garden entrance, while, recently, another service of motor buses has been started between Horsley and Ripley village. Passengers by the latter can alight at Stratford Bridge, half-a-mile from the Gardens which may then be reached by a pleasant road skirting Oakham Common, and by a path through Wisley Woods All these ways of reaching Wisley (except the walks from the Station) bring the Gardens within about an hour-and-a-half's journey from the City. The Gardens are open to those bearing Fellow's tickets (each of which will admit three) between 9 a.m. and 7 p.m. on week days. The Sunday opening does not start until May 2, and continues during the summer from 2 p.m. to 6 p.m.

Mr. J. K. Budde.—Many of our readers will be interested to learn that Mr. J. K. Budde, the curator of the University Botanic Garden at Utrecht, Holland, will be retiring at the end of this year, as he will have reached the age limit for service under the State, namely, sixty-five years. He has been curator—or, as he is generally called in his own country, Hortulanus—of the Utrecht Botanic Garden for nearly thirty-four years, and during that time has made many journeys in the interests of his work; to Brazil, the Argentine, South Africa, and twice to Russia, though not, he is careful to point out, at the expense of the State. Very many of the treasures in the hot-houses are the result of these journeys; from the Cape Mr. Budde brought no fewer than two hundred plants, mostly Cacti and other succulents, the names of all of which have not yet been determined. After an apprenticeship in Holland, Mr. Budde came, while still a young man, to England, with the object of improving his knowledge, and worked as a market garden employee near London at the princely salary of 16s. per week, on which he had to live. After that, he took service as a propagator and grower in a large Edinburgh nursery, where he gained experience in staging plants for exhibition. His time was chiefly occupied in growing Codiaeums; the houses frequently attained a temperature of 92° Fahrenheit, which the young man found very trying. From Edinburgh he returned to Holland, and entered Messrs. Ant. Roozen's nurseries at Overveen, where he was employed in the cultivation of bulbous plants, mainly Hippeastrums and Cyclamens. Here he was eminently successful, producing Cyclamens with forty or fifty blooms on a plant. His employer was astonished, and thought he had some secret method, but Mr. Budde admitted that he had no secret—his success was solely due to constant attention to a number of small details which, once acquired and applied, made cultivation quite simple. On his appointment as curator of the Utrecht University Botanic Garden, one of his first acts was to destroy the little notice "Entrée 25 cts." (Admission 25 cents") at the entrance, and admit the public free of charge. The splendid condition and varied nature of the plants in the houses are in themselves a liberal education in horticultural methods, and many are the treasures to be found there—the fine Cape Pelargonium Jakob Rechtop; Orchids, some of which had been tended for twenty years before they bloomed; miracles of plant mimicry such as Mesembryanthemums not to be distinguished in form and colour from the stones on which they grow; and so on. It is difficult to imagine the Utrecht garden without Mr. Budde, and almost equally so to imagine Mr. Budde anywhere but in the garden. As regards his plans for the future, we understand that in August next, his friend, Mr. Dakkus, the curator of the Buitenzorg (Java) Botanic Garden is to come to Holland on leave, and that when he returns, Mr. Budde is to go with him on a visit. Few men can have earned a holiday so thoroughly, and he will carry with him into the well-merited leisure of his retirement the cordial good wishes of horticultural friends throughout the world.

MR. J. K. BUDDE.

R.H.S. Amateur Show.—It cannot be too widely-known that the officials of the Royal Horticultural Society will stage exhibits for those amateurs who cannot personally attend the Amateur Show, to be held at Vincent Square, on June 22; this is conditional upon the exhibitor giving notification five days previously. Exhibits accepted will be unpacked and staged, but the Society will not undertake the responsibility of repacking and returning anything. Cups will be awarded to the exhibitor gaining most points in the three sections of the schedule. In section B, open to amateurs whose garden wage bill does not exceed £4 per week, a Cup is offered by *The Daily Telegraph*; while in Section C, open to amateurs who employ no gardener, a Cup is presented by the proprietors of *Amateur Gardening*. *The Gardeners' Chronicle* offers a Silver-gilt Medal for the best exhibit of twelve cut sprays of shrubs in flower, and the R.H.S. will award medals to specially meritorious exhibits, in addition to the money prizes.

British Mycological Society's Spring Fungus Foray, 1926.—This function will be held at Arundel, Sussex, from Friday evening, May 21, to Tuesday morning, May 25, that is, during the Whitsun week end. Headquarters will be at the Norfolk Hotel, Arundel; inclusive terms 15s. per day. Members should write to the Manager, mentioning that they do so as members of the British Mycological Society, and stating whether single or double rooms are required. It is advisable to book early as accommodation is limited, and at Whitsuntide will be in great demand. No further notice will be sent out. All arrangements for meetings will be posted up at the Norfolk Hotel. Members who may have short papers suitable for presentation during the Foray are requested to inform the secretary, Miss E. M. Wakefield, Herbarium, Royal Botanic Gardens, Kew.

"Flowering Plants of South Africa."—No. 20 of Vol. 5 of *The Flowering Plants of South Africa* contains illustrations and descriptions of ten plants. Ceropegia Haygarthii, t. 191, has the characteristic tubular flowers of the genus, pinkish white or greenish tinted and spotted with violet. It is a climbing plant with fleshy stems and small, fleshy leaves; the species is described as being almost unique in the genus on account of the peculiar formation of the corolla lobes. Protea Harmeri, t. 192, forms a bush about six feet high, and produces heads of brick-red flowers which show to advantage against the greyish-green leaves. Sutherlandia frutescens, t. 193, is a well-known plant in cultivation in this country, and was figured in the *Botanical Magazine*, t. 181. Ornithogalum odoratissimum, t. 194, is a very pretty species and has sweetly-scented flowers, indeed, the description states that "a single inflorescence is sufficient to saturate a large room with a pleasant scent, and even when planted out in the garden the strong perfume is noticeable for a considerable distance from the plant." The bracts are orange coloured and the anthers are also an orange shade. Athrixia elata, t. 195, is a much-branched shrub producing heads of purplish-mauve flowers. Sutera Burkeana, t. 196, is said to flower profusely and to be a promising subject for improvement under cultivation. The flowers are arranged racemosely at the ends of the branches, and have long corolla tubes; the lobes are a violet-purple shade, edged with yellow. Euphorbia tridentata, t. 197, is a rare plant, but it has been known in European gardens for some one hundred years. The branches are glaucous and terminate in an involucre of yellowish flowers with purplish lobes. Venidium Wyleyi t. 198, is a very handsome flowering plant known as "Namaqua Daisy." The bloom is somewhat like a large Gazania splendens. Erica blenna var. grandiflora, t. 199. The flowers of this pretty Heath are bell-shaped, solitary, rarely in pairs, with a bright orange-red corolla. It is described as one of the most beautiful of the Cape Heaths. Dimorphotheca cuneata, t. 200, also is a promising garden plant, and said to bloom so profusely that the leaves are almost hidden by the mass of flowers. The laminae of the ray florets are white above and copper-coloured beneath.

Research Laboratory in Covent Garden.—The Department of Industrial Research announces that it has established a small research laboratory at Dudley House, Endell Street, W.C.2, quite close to Covent Garden Market. The chief object of this new laboratory is to bring the Low Temperature Research Station at Cambridge into closer touch with the trade in fruits and vegetables, especially in connection with the problems of transport and storage. The advantages attaching to the establishment of the Endell Street station are that the workers in the laboratory will be able to study fruits and vegetables the whole year round.

Belgian Dahlia Exhibition.—The Royal Dahlia Society and Rose Circle of Borgerhout, near Antwerp, will celebrate its fiftieth anniversary in the autumn, and is arranging an international exhibition of Dahlias, Roses, and flowers of all kinds, from the 4th to the 6th of September, 1926. This event will take place in the Salle des Fêtes and communal park at Te Boelaar, Borgerhout; the King has promised his patronage, and the local councils of Borgerhout and Antwerp are showing a kindly interest. A valuable collection of prizes has been obtained, headed by a Prix d'Honneur from the King, and a great success is anticipated.

Notes from the Edinburgh Botanic Garden.—A first-rate index is work of immense importance and usefulness in connection with any publication, and the more so when it refers to such an important work as *Notes from the Royal Botanic Garden, Edinburgh.* The *Index* just to hand consists of fifty-four double-column pages and covers the series of *Notes* for 1900 to 1924, *i.e.*, vols. I to XIV. To a very large extent it is an index of references to modern plant introductions, therefore it is particularly welcome. The price is 2s. net, and copies may be obtained from the Royal Botanic Garden, Edinburgh, or from H.M. Stationery Office, 120, George Street, Edinburgh.

Mr. H. Correvon in America.—Mr. H. Correvon, of La Floraire, Geneva, has delivered numerous lectures during his visit to America, and at the Smithsonian Institute, Philadelphia, on February 20, he had an audience of six hundred. He has also lectured at Hartford, New Bedford, Milton, New York, Richmond, Cornell University and Rochester. According to the American press, he is also delivering addresses at Pittsburgh, Ann Arbor, Detroit, Columbus, Cincinnati, Dayton, Cleveland and Chicago.

Destructive fire at Fire Hills, Hastings.—We learn with great regret that the beauty of the charming Fire Hills, Fairlight, Hastings, was destroyed on Monday, March 22nd, by a fire which commenced amongst the Gorse and in a very short time an area of fifty acres was burning fiercely. Fairlight and the Fire Hills constitute one of the beauty spots of Sussex and are well known to visitors to Hastings. Quite recently an appeal was made for funds to preserve Fire Hills for the use of the public for all time.

Post-War Development in Plants and Flowers.—A new class of special interest will be added to this year's schedule of the Staffordshire and Midland Counties Floral Fête. Messrs. Abol, Ltd., are providing a handsome Challenge Trophy, value seventy guineas, for the exhibit which demonstrates the greatest post-war development or advance in any one family of plants. Hybridists, plant-breeders and selectors, and also collectors, have been distinctly successful in their activities in many directions since the enforced suspension of such labours during the period of the war, and it is a happy thought that so many as possible of these recent developments should be brought together with a view to paying just tribute to the most notable extension of either ornamental or utilitarian value. It is obvious that at any one show some important subjects must be barred by seasonal limitations, but it is understood that the generous donors, realising this, intend that in due time the trophy shall be offered at spring and autumn shows, so that modern developments in all directions shall in turn receive due recognition. The conditions of the competition are to be as simple as they can possibly be made, and families of strains of plants which were in process of evolution or development prior to the war, but which have shown their greatest advance since that period will be eligible. Moreover, the subjects entered for this competition may form part of an exhibit in any other class, provided they are so staged as to be readily identified by both judges and visitors. The donors of this interesting and covetable trophy will also present the winner with a permanent momento of the triumph. The secretary of the Staffordshire and Midland Counties Floral Fête is Mr. John Sherratt, 70B, Station Street, Burton-on-Trent, in which town the show will be held on August 11 and 12.

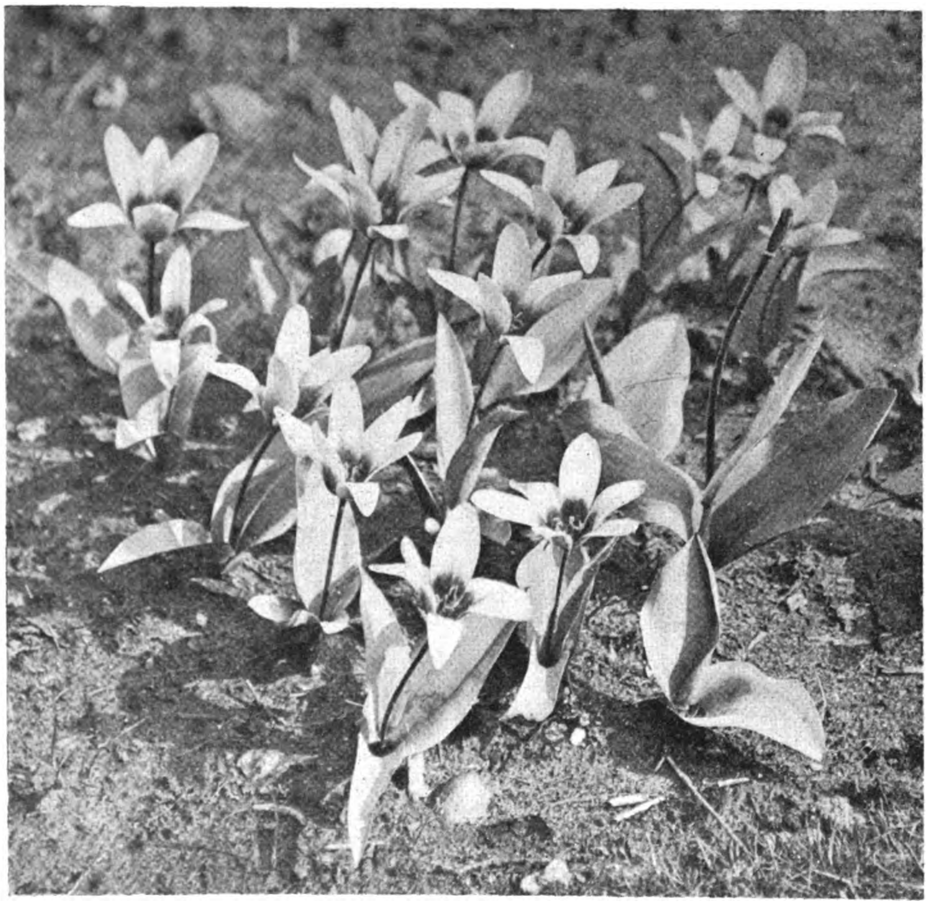

FIG. 111.—TULIPA KAUFMANNIANA AT WISLEY.

(see p. 228)

Appointments for the Ensuing Week. — Wednesday, March 31: Pangbourne Gardeners' Mutual Improvement Association's meeting and lecture. Saturday, April 3: Paisley Florists' Society's Exhibition.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Wine from the fruit of the Holly-leaved Berberry.*—I am not aware that the fruit of Berberis aquifolium has been previously turned to any useful purpose. I beg, therefore, to send you the result of an experiment with it on a small scale, which may prove interesting. This very pretty evergreen may not be known to all. I may, therefore, observe that it is a native of North America, that it has compound leaves, somewhat like those of the common Ash, except that they are evergreen and prickly, like the Holly, from whence they take their name. The flowers are produced early in summer, and are succeeded by bunches of berries like Black Currants, except that they are covered with a beautiful glaucous bloom. In my nurseries I had a quantity of bushes which were covered with a profusion of fruit. On tasting it, though its acidity was intense, it struck me that it would make good wine, and the juice staining the fingers like the Claret Grape, made me certain that it would be of a fine colour. I gathered two gallons of these berries, and when picked clean from the stalks, they were bruised and two gallons of cold spring water added. After six pound of lump sugar were put into it, and being covered up it soon fermented, when it was put into a cask, adding two pounds of chopped raisins, and stopping the cask down. After six months it was bottled off. The result has been a most beautiful home-made wine, rich in colour, similar to the best old port; every one who has tasted it pronounces it *first-rate*, and I am convinced that with age it would well merit that eulogium. I am also of opinion that this kind of fruit would make an excellent preserve, tying three or four of the bunches together, and boiling them in sugar; they would prove extremely grateful in cases of fevers, etc. The juice also would make jelly, similar to that of Black Currants; and very probably, from the medicinal qualities of the Berberry, it might be highly useful. *J. F. Wood, F.H.S., The Coppice and St. Ann's Well Nurseries, near Nottingham. Gard. Chron., March 29,* 1851.

The Week's Work.

THE ORCHID HOUSES.

By J. COLLIER, Gardener to SIR JEREMIAH COLMAN, Bart., Gatton Park, Reigate, Surrey.

Calanthe.—Deciduous Calanthes are cultivated extensively to supply cut flowers during the winter. A special Orchid house is not essential for the cultivation of these plants, as they may be grown with great success in the ordinary plant stove, or in Melon and Cucumber houses, provided sufficient warmth is maintained, and they are shaded from bright sunshine during the hot summer months. They need to be grown in a light position near to the roof-glass. About the end of the present month the majority of the plants will be sufficiently advanced in growth to be repotted. The most suitable time for the work is just previous to when the new roots begin to develop from the base of the young growths. Previous to repotting remove the exhausted soil and shorten the roots on the pseudo-bulbs to about one inch; the portion retained will help to keep them in position until the new roots obtain a hold of the fresh compost. Each pseudo-bulb should be cleansed thoroughly from scale insects that often infest the base of the plant.

Repotting.—Calanthes require a richer and more retentive soil that most other Orchids; a suitable mixture consists of three parts its bulk of good fibrous loam, from which the small particles have been shaken away, and one part of half-decayed Oak leaves and chopped Sphagnum-moss, with a fair sprinkling of crushed crocks, silver sand and a small quantity of bone-meal. After the compost has been prepared stack it in a suitable place where it will become warmed through. It is best to place the plants singly in six-inch pots, for the largest pseudo-bulbs, using proportionately smaller-sized receptacles for the others. Ample drainage material is essential, and the pots should be one-third filled with clean crocks; over the crocks place some Oak leaves to prevent the drainage from becoming clogged. Arrange the compost firmly in the pot to about one inch from the top, then place the base of the pseudo-bulb on the surface, cover the old roots and leave space for watering. After they are potted place the plants in a light position near the roof-glass in a warm house. Very little water will be needed for five or six weeks after potting, but when the new roots have grown freely into the compost and the leaves begin to unfold, the amount of moisture at the roots should be increased, and from then onwards the soil should never be allowed to become dry until after the flower spikes are cut. Healthy, back pseudo-bulbs that were removed may be used for propagation. If arranged on Spagnum-moss in a shallow box and placed in a warm, moist house they will quickly produce new growth.

THE KITCHEN GARDEN.

By F. STREETER, Gardener to LORD LECONFIELD, Petworth Park, Petworth, Sussex.

Turnips.—The first sowing of Early Snowball, Red Milan and White Milan Turnips should now be made on a warm border. Break down the soil to a fine tilth and give it a good dressing of wood ash and soot. Draw shallow drills twelve inches apart and sow the seeds thinly and evenly, covering them very lightly. If birds are troublesome place a single strand of black cotton along each row. Thin the seedlings early and keep the soil well-stirred with the Dutch hoe. Turnips prefer a fairly firm soil and should not be allowed to suffer from want of water at the roots.

Carrots.—Main-crop Carrots should be sown so soon as the ground can be brought into first-class condition and dressed liberally with soot. The site should be an open one. Make the surface soil very fine, draw shallow drills twelve inches apart and sow the seeds very thinly and evenly. Dust the rows with finely sifted, dry wood-ash, cover the seeds lightly with soil and rake the whole bed to give it a smart appearance. New Red Intermediate and Favourite are excellent varieties for exhibition purposes. Bore a sufficient number of holes, three feet deep, in rows made fifteen inches apart, setting the seeds twelve inches apart in the row. Fill the holes with finely-sifted, sandy soil, as recommended for Parsnips, place a few seeds in a cup-like depression at each station, and cover them with a little of the prepared soil. Dust the soil liberally with soot. Another sowing of a stump-rooted variety should be made on a warm border for obtaining young Carrots. This sowing will provide a plentiful supply of roots through the early summer.

Cauliflowers.—Autumn-sown Cauliflowers, wintered in frames and thoroughly hardened off, are ready for setting in their final quarters. Select an open site on ground that has been well-trenched and manured. The young plants should be lifted carefully with a big ball of earth and roots and planted two feet six inches apart. The maller plants should be placed in another position to prolong the season. If the weather is at all dry give the plants a liberal watering. Keep the spring grown varieties growing very sturdily to form a succession to the above.

Globe Artichokes.—Remove material that has been used during the winter to protect the plants, arrange a ring of fine cinders around their collars, and fork the soil lightly and neatly between the rows. Artichokes wintered in pots in frames should be planted out so soon as possible.

Broccoli.—A sowing of Michaelmas White Broccoli should be made in a frame. The plants will be found most useful after the Autumn Giant Cauliflowers are over.

Kales and Winter Greens.—All Brassicas should be sown on a firm border. Sow a small bed of each kind, sufficient for all purposes. Sow thinly, label the varieties carefully, and cover the bed with old netting as a protection from small birds.

Lettuce.—Another sowing of Lettuce should be made for successional cropping.

THE FLOWER GARDEN.

By F. C. PUDDLE, Gardener to LORD ABERCONWAY, Bodnant, Taly-Cafn, North Wales.

Rock Gardens.—Saxifragas of the Kabschia section and other early-flowering alpines should be top-dressed as they pass out of flower, and the top-dressing of the later-flowering subjects proceeded with. Few plants benefit more from repeated top-dressings than Gentians, especially the lime-loving species, such as Gentiana acaulis, G. verna, and G. lagodechiana. A suitable soil mixture for these and other lime-loving subjects, consists of three parts loam, two parts leaf-soil, and one part sand. Unless the loam is highly calcareous, lime in some form should be added. I have little faith in mortar rubble as a means of rectifying a deficiency of lime in the soil, for it is almost insoluble. Probably the most natural means of supplying lime is by the use of carbonate of lime, and in top-dressings this material may be used at the rate of five per cent. of the compost. Peat-loving plants may be top-dressed with a compost consisting of four parts leaf-mould or peat, and one part sharp sand. These include Primulas, hardy Cypripediums (with the exception of C. calceolus, which prefers the calcareous mixture). Gentiana bavarica, G. pyrenaica, G. Farreri, and G. sino-ornata. The two last often produce axillary growths on the old stems, and these may be either taken off for propagating, or the stems may be pegged to the soil to enable the young growths to obtain a firm root-hold. Many moraine plants are also benefited by a top-dressing, composed of equal parts of leaf-mould and sharp sand or fine scree. Certain alpines have prostrate stems, and are apt to become a little straggling. It will be found an advantage to peg these stems into position before top-dressing the plants. Short lengths of black, annealed stubbing wire make excellent pegs for this purpose.

Hardy Annuals.—Although many hardy annuals transplant readily, there are certain kinds which need to be sown where they are to flower, and these, which include Poppies, Calendulas, Mallows, Nemophila insignis, Eschcholzias, Sweet Sultans, Annual Lupins, Linum grandiflorum rubrum and Phacelia campanularia, may now be sown. Thin sowing and early thinning are important details in their successful cultivation. Hardy annuals which are sown in beds for transplanting, may, if they are required for planting out simultaneously at the end of May, be divided into two sections: the slower-growing, which should be sown forthwith, include Salvia Bluebeard, Nigellas, Coreopsis and Larkspurs. The quicker-growing, which may be sown ten days or a fortnight later include: Clarkias, Viscarias and annual Chrysanthemums. They may be sown thinly in rows made six inches apart. If a little leaf-mould is worked into the bed before sowing it will benefit the seedlings and facilitate their lifting.

HARDY FRUIT GARDEN.

By W. AUTON, Gardener to VISCOUNT ELVEDEN, Pyrford Court, Woking, Surrey.

Pears on Walls.—The fruit buds are well-advanced, and on some varieties where flowers promise to be very numerous, a little thinning may profitably be carried out. This will give the remaining flowers better opportunity for their full development and, besides conserving the energy of the trees, will save considerable work in thinning the fruits later. On light, sandy soils, trees on walls, particularly those planted this season, are liable to suffer from drought at the roots, and so soon as top-growth is active, a copious watering is advisable, especially if a mulch has not been applied. Trees which were planted late will benefit by being syringed late in the afternoons during periods of bright, sunny weather, and syringing may be continued until growth is well advanced. Pear trees on walls enjoy favourable conditions which help the cultivator to obtain more or less regular crops of fruits from established trees, and it not infrequently happens that the trees become exhausted from this continuous cropping if regular feeding is not practised. Trees which have not received applications of fertilisers this season should now have a fairly heavy dressing of superphosphate hoed into the surface soil. Later, when the fruits have set and are swelling, a dressing of sulphate of ammonia may be given.

Apple Sucker.—This insect, Psylla mali, is often the cause of injury to the Apple crop which is attributed to other pests, as the larvae which cause the injury are so minute that they are easily overlooked. Although the best results accrue from measures of control taken in the autumn, before egg-laying commences, a sharp watch should be kept in early spring when the eggs hatch and the tiny, flat larvae seek to enter the nearest buds. Spraying with a nicotine wash when the larvae are exposed would be efficacious, but the operation should be done carefully. Once the larvae have entered the folds of the buds spraying is less efficacious owing to the protection given. Development goes on for about a month, during which time several moults take place, but the stalks of blossoms and leaves are being drained of their sap during the whole time until the nymph stage is reached prior to the appearance of the perfect insect.

General Remarks.—At this date all pruning and tying of fruit trees will be finished, and the chief work in the fruit quarters will be surface cultivation between the trees to keep the ground free from weeds and to assist aeration of the soil. Newly-planted trees, especially standards, should be examined occasionally to ascertain if they are held firmly in position, and if any have not been mulched this should be done forthwith. The winds of March frequently disturb stakes, and watch should be kept for the straining of ties. Where the ends of Raspberries, Loganberries and similar fruits were left when tying in they should now be shortened to the trellis wires. During rainy weather the stock of nets in use for protection of the fruit in summer should be overhauled, and, if necessary, repaired. By getting this work done early one is able to judge whether new nets will be needed, and if this is found necessary they should be ordered now so as to be at hand when wanted.

FRUITS UNDER GLASS.

By T. Pateman, Gardener to Sir Charles Nall-Cain, Brocket Hall, Hertfordshire.

Early Permanent Vines.—When the early vines are forming their seeds, slightly increase the night temperature, but not more than about 5° unless the weather is very mild. On cold nights the temperature may be allowed to drop to 60°, rather than obtain the additional 5° by the excessive use of fire-heat. Take advantage of bright days to forward the crop by closing the house early, but at this stage it is wise to admit a small amount of fresh air at night through the top ventilators, when outside conditions are favourable. Carefully pinch out the laterals, for good healthy leaves are preferable to overcrowded lateral growths.

The Early Muscat Vinery.—The vines in the early Muscat vinery that was closed about the last week in January will, in all probability, be in bloom. At this stage the house should be kept slightly on the dry side; a constant circulation of warm, buoyant air is essential to the berries setting well, but much depends on the weather. If it turns cold allow the temperature to fall slightly below the normal, rather than promote an arid atmosphere by fire-heat, which is detrimental to the berries setting freely. Muscat Grapes are shy in setting, and the flowers need to be pollenated by the use of a camel-hair brush with pollen obtained from Black Hamburgh. Once the berries are set, the border may receive a liberal watering, warming the water to the same temperature as the house.

Planting Vines.—Where new vine borders have been made, the present is a suitable time to plant the vines, which will commence to grow almost at once. If the rods have not been shortened, this should on no account be done now, but disbudding should be resorted to by rubbing out all eyes beyond the desired height, finally removing the disbudded part next autumn, when it will be found quite safe to do so. Before planting it will be wise to remove as much of the old soil in the border as possible, and spread the roots carefully to their full length, covering them lightly with good rich compost. These young vines will require very little, if any, fire-heat when starting into growth.

PLANTS UNDER GLASS.

By John Coutts, Assistant Curator, Royal Botanic Gardens, Kew.

Clianthus Dampieri.—This beautiful species, known as the Glory Pea, has attractive red and black flowers, and silvery grey foliage. Its cultivation is difficult for although it may be raised and grown from seeds it has always been regarded as a difficult subject to grow successfully on its own roots It may, however, be grafted on seedling stocks of Colutea arborescens (Bladder Senna), but the grafting is a very delicate operation and needs to be performed when both plants are in the seedling stage. The seedling Coluteas should be pricked off into thumb pots, the young growing point being cut out from between the two cotyledons or seed leaves, then, with a sharp razor, the swollen hypocotyl is split, the stem of the tiny seedling Clianthus cut to a wedge shape and inserted in the slit stock. The grafted part should be bound with a very fine, soft strand of cotton or raffia. Great care is necessary to prevent bruising the very tender tissues of both stock and scion; at this stage the best support is a bristle from a bass broom. Stand the young plants in a warm propagating case in which they will quickly unite, if the operation has been carefully performed. In preparing for this work the seeds of the Colutea should be sown about ten days before those of the Clianthus. When the young plants have united they should be removed from the case and stood on the stage near to the roof-glass. When growing freely they may be shifted into larger pots, taking care not to injure the roots as a check is apt to prove fatal. As the season advances they should be accustomed to greenhouse conditions, and by autumn they should be well-established in five-inch pots, in which they should pass the winter. The following spring they may be shifted into seven-inch or eight-inch pots in which they may be flowered, training the shoots to wires under the roof-glass. This plant is also very attractive when grown in large hanging baskets, and should be placed in the baskets when they are ready for shifting into five-inch pots; several plants may be used according to the size of the basket. Clianthus Dampieri attains its greatest size planted in a well-drained, raised bed in a cool house. I have grown grafted plants in this manner in a Malmaison Carnation house, in which their shoots attained a length of ten to twelve feet. The compost should consist of well-matured loam, a little fibrous peat, and sufficient clean, coarse sand, or old mortar rubble to render the soil open and porous. Great care is necessary when repotting the plant, also in watering the roots at all times. Attacks of red spider must be guarded against.

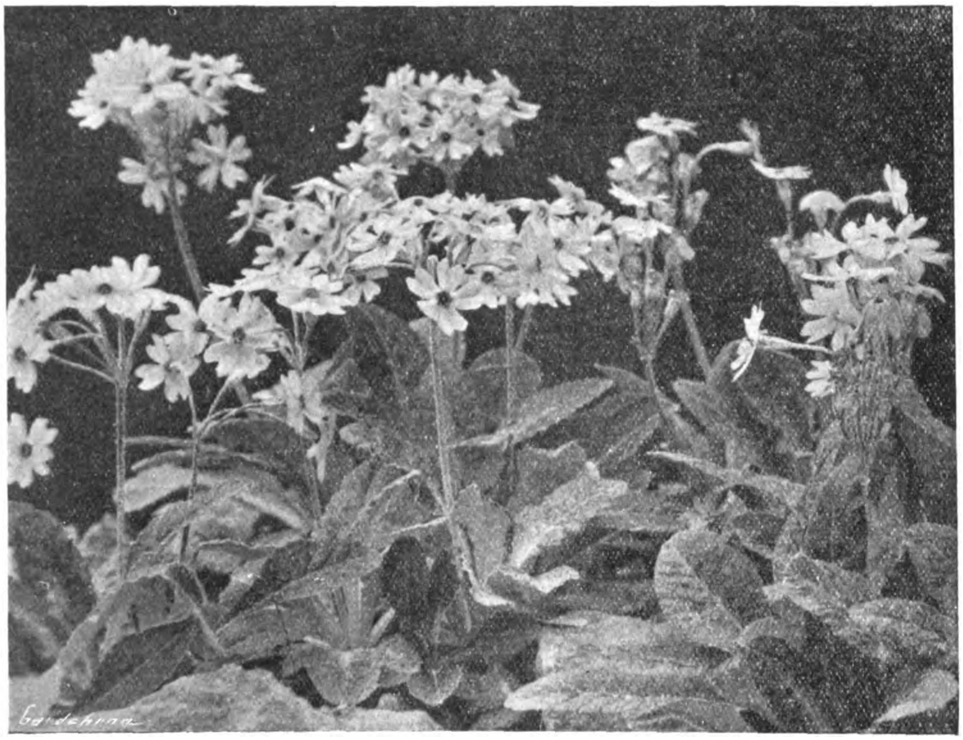

FIG. 112.—PRIMULA FRONDOSA.

(see p. 231.)

FOR NORTHERN GARDENERS.

By A. T. Harrison, Gardener to the Marquis of Ailsa, Culzean Castle, Maybole, Ayrshire.

Broccoli.—This vegetable has withstood the winter extremely well, and since the new year has kept us supplied with good heads. The later varieties are now developing curds, and should have the outer leaves broken over the latter to protect them both from frost and the browning effects of the weather. This attention should be given weekly, so that any missed on the previous occasion may be covered before much damage has been done. It is sometimes advisable to heel Broccoli over to the north, and while this may be advantageous in cold, inland gardens, it is quite unnecessary in milder districts.

Lawns.—Grass is beginning to grow freely, and any bare patches in lawns should be renovated. Top-dressings should be evenly distributed and well brushed in before the regular rolling and mowing for the season commences. On large lawns the chain-harrow, drawn by horse, is a most effective implement, to be followed by a heavy roller, but on smaller areas the home-made Birch broom is suitable, scattering the worm-casts and removing all sticks and stones. Mossy lawns may be greatly improved by scarifying them with rakes or other implements before top-dressing them, and applying a fairly heavy dressing of lime, to be followed during the growing season with one or two applications of sulphate of ammonia at the rate of about one ounce to the square yard. Weedy lawns are also greatly benefited by occasional dressings of sulphhate of ammonia, and such broad-leaved weeds as Plantains, Dandelions, etc., may in course of time be eradicated by its use.

Sweet Peas.—While fully appreciating the enormous advance in size and colour of the modern Sweet Pea, I feel that there may be many who, like myself, miss the glorious rows of mixed Sweet Peas that were a feature of most gardens in by-gone years, and which, if they did not produce such fine, long-stemmed flowers, were certainly more ornamental than the trained and disbudded rows in separate colours now met with nearly everywhere. Plants from a sowing made now will, with ordinary care in the matter of staking, etc., give large quantities of flowers from July onwards. Do not sow too thickly, and dust the rows frequently with lime, as a deterrent to both birds and slugs, when the seedlings are showing through the soil.

NOTES FROM EDINBURGH.

What may be termed the beginning of the Rhododendron season at Edinburgh occurred towards the end of February, and as the season progresses some interesting comparisons may be made concerning the behaviour of the same species under glass and out of doors. Thus, R. moupinense flowered better in the open than under glass, and was, if anything, slightly earlier in flowering. On the contrary, R. fulgens flowers as well under glass as in the garden. R. mucronulatum, which is only now, mid-March, in full flower out-doors, reached maturity under glass about a month ago. At the present time R. neriiflorum is flowering out of doors very well, but the plants under glass are much behind and will not bloom for some time yet. The hedge of R. praecox, which forms such a distinct attraction to visitors, was seen at its best on the 27th and 28th of February, but alas! its beauty was destroyed by frost the week following. The same destructive agency put an untimely end to the flowers of R. barbatum, R. strigillosum (despite the shelter provided), and R. dauricum.

At the present time R. fulgens, R. quinquifolium, R. mucronulatum, R. intricatum and R. Edgarianum, Rehd. and Wils (in part) are flowering well out of doors, whilst, under glass, R. lochmium, R. argenteum and R. fulgens are the most attractive species.

Last year the value of Leguminous plants for greenhouse decoration at this time was commented on in my notes, and some examples given. Thus, Cytisus Hildebrandtii, and the sweetly scented C. canariensis make a good splash of colour with their yellow flowers, and it is extraordinary how many yellow-flowered Leguminous plants there are. There are the Acacias, with all shades of yellow, from the extremely pale A. urophylla, now out of flower, to the rich deep tint of A. pulchella grandis, which has yet to open its blossoms. The most valuable Acacia is, of course, A. dealbata, a native of New South Wales, but there are others which are worth growing. A. Drummondii is quite a distinctive species, with rather pale yellow flowers, so arranged as to resemble a finger. Then there is A. verticillata, with dark green, very prickly leaves, a species which lasts well when used for cut flowers. A. cultriformis is a very decorative species, with gay foliage and produces a quantity of flowers. As a plant for climbing up a pillar, A. Riceana is hard to beat, for then its inflorescences may be seen to advantage; but one of the best of all Acacias is A. extensa, a very free-flowering species with inflorescences of a fine deep yellow. It is best to train this plant so as to cover the roof; given ample room it will produce a very fine effect.

Another group of Leguminous plants valuable at this season are the Chorizemas. These are natives of Australia; their flowers are red and yellow-brown in colour, and the plants are admirable for pot culture. Four species are in cultivation in Edinburgh, viz., Chorizema cordatum and its variety splendens, C. ilicifolium, and C. varium, known also as C. Lawrenceanum. Chorizema cordatum is also known as C. Lowii. These are all very free-flowering plants and should be stood out-doors after flowering so that the growths may become thoroughly ripened. Another plant noted as good for decorative purposes, in Prostanthera rotundifolia, a small-leaved species, which produces a goodly number of deep mauve-coloured flowers. A relative, P. linearis, makes a good wall plant, and is distinguished by its fine leaves and white flowers.

An interesting bulbous plant in flower, although not very ornamental, is Veltheimia viridifolia. This produces broad, dark green, shining leaves, arranged like a cross when looked at from above, and from the centre arises a long, thin, greyish stem, about nine inches to one foot in length, at the top of which are grouped the pale pink pendent blossoms.

The good display of the white flowers of Clematis Armandii should not be overlooked, neither should Erica President Faure be passed without commenting on its fine habit, and its pretty pink and white flowers. It makes a very good display.

The corridors are bright with the orange-coloured flowers of Clivia miniata. The orange of the flowers and dark green of the broad leaves associate very well. Orange-coloured flowers are, I think, always an acquisition, more especially among plants grown for cut flowers.

A good display of Camellias has been maintained, and there is now in flower that extremely fine species, C. reticulata. Its flowers are of large size, and of a deep red colour; the foliage is grey-green in appearance. This is a free-flowering species which well repays a little attention, particularly in the matter of disbudding.

In the tropical houses Whitfieldia lateritia has been conspicuous, and also Metriostigma axillare, with its grey-green leaves and white flowers. Brunfelsia americana is another useful stove plant now in flower, and the Lily-like flowers of Randia maculata are now in evidence. The pink flowers of Stromanthe sanguinea make a brave show in the Aroid house, while elsewhere the deep blue flowers of Thunbergia Vogeliana and the more attractive mauve ones of T. laurifolia are worthy of note. *Robert H. Jeffers.*

NOTES FROM WISLEY.

One of the most conspicuous features at the present time in the gardens in this part of the country is the Forsythia, which has flowered remarkably freely this year. At Wisley, the bright yellow of Forsythia suspensa is seen high up among the branches of a group of Pine trees, while many plants of the larger-flowered and more erect Forsythia intermedia make a blaze of yellow in the Field Garden. Another yellow-flowered shrub which is flowering very well this year is Corylopsis spicata. The flowers and bracts are sulphur-yellow, a shade which is very effective in association with Forsythia.

Plants of the pink-flowered Rubus spectabilis are also in bloom, although it is considerably before its usual time. A large patch of Polygala Chamaebuxus var. purpurea, with purple and yellow flowers, is blooming among the Ericas, together with some dwarf, double-flowered Gorse.

In the wild garden many beautiful Rhododendrons are in flower, such as R. Thomsonii, R. campanulatum, R. ciliatum and the dwarf R. hippophaeoides, which has bluish flowers. There are also one or two other Rhododendrons in bloom which have blue or nearly blue flowers, including R. idoneum and R. intricatum, on the rock garden, and R. fastigiatum, and an unnamed species of Farrer's in the alpine house.

Primula Winteri continues to bloom on the rock garden, and many other species of Primula have lately come into flower, such as P. denticulata, P. frondosa, with meal-covered stems and leaves, and P. rosea. The vivid pink form of the latter, named Brockhurst, is flowering in the alpine house, where P. Juliana and similar hybrids are providing their customary profusion of bloom. Other members of the Primula Order flowering at Wisley are P. Loczyi, which sends out runners, and Cortusa pubens, with nodding, pink flowers.

Several pink-flowered varieties of Arabis are in flower on the rock garden, such as Taplow Rose, A. aubrietioides and A. Stelleri rosea. The flowers of the last, however, are rather insignificant. When Anchusa myosotidiflora is flowering among plants of Omphalodes verna, as is the case in one bed in the rock garden, it is not easy at first glance to decide which is which, until one remembers that the flowers of the latter are marked with white radiations from the centre, and also that the leaves are smooth while those of the Anchusa are rough to the touch.

Many Narcissi are in flower in the trial of seedlings which were planted in the autumn before last. One of the first to flower was a variety named Sulphur. Another handsome, long-trumpeted variety is Waterloo. Large numbers of Crocuses also have lately been planted at Wisley and are now in bloom near the Paeony beds. One of the best pure white sorts is Innocence, while good violet varieties are Paulus Potter, Ne plus Ultra and Velvet, the last being one of the darkest of all. Fantasy is an attractively-striped sort, L'Unique has pinkish colouring, whilst Amethyst and Agnes are good varieties of an opalescent lavender shade.

The Carnations are flowering well in the Carnation house, which also houses the trial of Lachenalias. One or two varieties of these plants are more peculiar than beautiful, but exceptions are seen in Leiden, an orange-flowered variety, and Siam and Arabia, with clear yellow bells. In the case of Mandalay, the flowers in bud are bright scarlet, which gradually changes to buttercup-yellow as they mature. Some salmon spikes of Watsonia Meriana are also prominent in this house.

Lathraea Clandestina, a purple-flowered parasite which is growing on the roots of a tree of Salix babylonica on the pond bank, is now in flower. It has an English relative in the common Tooth Wort, Lathraea Squamaria, which occurs on the roots of Hazel at no great distance from Wisley. In the border in front of the Laboratory, Tulipa Kaufmanniana (Fig. 111) is in bloom. A scarlet-flowered variety of this very graceful Tulip, named Brilliant, is blooming in the rock garden. *J. E. G. White.*

DAMPING OFF.

During the winter and early spring there is often much trouble with seedlings and cuttings damping off, and it is frequently attributed to the wrong cause.

It is true it is caused by a fungus, and when leaf-mould is used, if there is any suspicion that the rooting-material is likely to contain fungous spores it should be subjected to sufficient heat to sterilise it. But generally, damping off follows from condensation of moisture on the stems close to the soil. If the little plants or cuttings can be kept in a suitable, nearly fixed temperature, they are not likely to suffer in this respect, but let the temperature drop considerably and then rise suddenly, by natural or artificial means, there is immediate danger. The soil will take much longer to become warm than will the atmosphere. Moisture will collect on the surface as well as on the lower parts of the stems, and it will remain there until the soil becomes warmed.

Many successful growers place the boxes or pans containing Tomato seeds (for producing an early crop) on the water pipes until germination has taken place, and the seedlings are not likely to damp off while in that position, because the soil is kept warm. But the plants require more light so soon as they appear, and then the trouble comes if they are shifted to a position where the temperature fluctuates considerably. If they can be kept in a tolerably warm and even temperature, and at the same time in the light, there is not likely to be much trouble with damping, provided ventilation is carefully attended to.

When I have neglected to open the ventilators and the temperature has risen 5° to 10°, I have not hesitated to water seedlings with water sufficiently heated to warm the soil throughout. But this must not be done frequently or the soil would become too wet.

It is not the amount of moisture in the atmosphere which causes damping. It may occur when the soil and the atmosphere are both too dry for plant life, but let the temperature suddenly rise 10° and sufficient moisture will collect on the surface of the soil and the stems of the plants or cuttings to cause much harm. The trouble is more likely to occur in bright than in dull weather if ventilation is delayed. *W. Taylor.*

TREES AND SHRUBS.

STACHYURUS.

Two species of Stachyurus are in cultivation—S. praecox, a native of Japan, and S. chinensis, first introduced into our gardens by Mr. E. H. Wilson from Western China in 1907. Two other species are known to botanists from herbarium specimens—S. himalaicus, described in the *Journal of the Linnean Society* in 1861; S. yunnanensis, found by Mr. Wilson in Western Szechuan, and also the variety pedicellatus, discovered by the same collector in Eastern Szechuan in 1910.

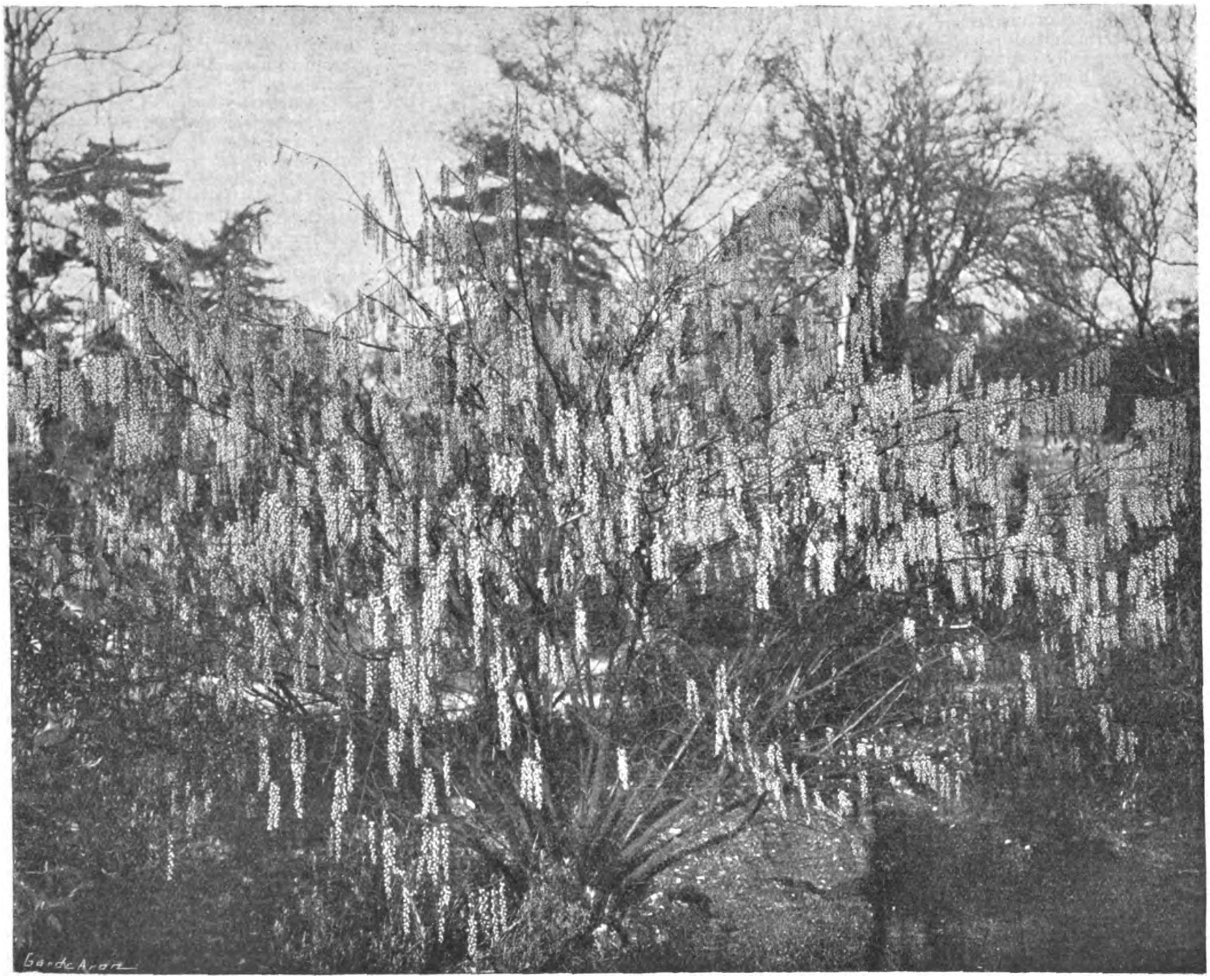
FIG. 113.—STACHYURUS CHINENSIS.

Strachyurus is usually included in the Natural Order Ternströmiaceae which contains such widely differing shrubs as Camellia, Actinidia and Stewartia. In *Plantae Wilsonae* the authors make it the type of the Natural Order Stachyuraceae.

As garden plants there is not much to choose between the Chinese and Japanese species. They are hardy, deciduous, flowering shrubs of spreading, arching habit, five feet to seven feet in height, and more in diameter. In the axils of the leaves, on the young wood, spikes of flower buds are to be seen forming in early autumn. In February and March, before the new leaves appear, these develop into pendent racemes from one-and-a-half inch to three or four inches long, crowded with numbers of tiny, bell-shaped blossoms, one-third of an inch across. Though small individually, the pale yellow blossoms are freely produced, and at this early period in the year they are decidedly attractive and valuable subjects for the sheltered shrub garden.

The specimen bush of S. chinensis illustrated in Fig. 113 is Wilson's No. 89, raised from seeds collected in Western Hupeh in August, 1907, at an altitude of 900 to 3,000 feet.

In habit S. chinensis appears stronger than S. praecox, but that may be because numbers of the former are seedlings, whilst most of the latter have been propagated from cuttings and layers. S. chinensis produces fruits with us—when the flowers escape spring frosts,—but I have seen more fruits on S. praecox, and these are described as larger than those of S. chinensis. Growing in close proximity at Kew the racemes of flowers on S. praecox are much shorter than those of S. chinensis, but this may be only an individual difference between two plants. The colour of S. praecox is creamy yellow, that of S. chinensis yellow and green.

Species of Stachyurus should be planted in sheltered, sunny positions in well-drained, light, loamy soil, with leaf-mould and peat added. *A. O.*

RHODODENDRON FALCONERI EXIMIUM.

LIKE the cream coloured type, this handsome pink variety is only suitable for the more favoured localities. With some shade from adjacent trees, and sheltered from prevailing winds by taller shrubs, it may be grown quite successfully in many parts of Sussex. Individual plants vary considerably in habit, but most are somewhat tree-like, and the older stems covered with rough, scaly bark, are often bare of branches towards the base.

The noble leaves are covered on the under side with a bright, rust-coloured down, and for the first season, on the upper side also, and though it is for the most part gradually removed by rain, it is, for sometime afterward, evident on the midrib as a dark, furry line. On the petiole it is retained until it finally becomes dark green.

With us, Rhododendron Falconeri eximium flowers more freely and at an earlier age than the type. A good truss contains about thirty or even more flowers, and for some time after they burst from the huge, pointed, rust-coloured flower buds they are very bright pink, but gradually become paler as they open and develop into deep, bell-shaped flowers, in which the brown anthers and especially the large green stigma are prominent features. Plants vary in their season of flowering, thus, a specimen nine feet in height and carrying seventeen trusses was in full bloom on March 8, while others had their buds still firmly closed. *J. Comber, Nymans Gardens.*

BERBERIS JAPONICA.

I AM given to understand that the shrub we have always known by the above name is probably not in existence in our gardens. That, at any rate, seems to be the opinion of Dr. Camillo Schneider, perhaps the greatest living authority on the subject, and who is also credited with stating that our familiar B. japonica is none other than B. Bealei. Be that as it may, B. japonica, as we know it, is just now in the full beauty of its flowering season, and it is a remarkably handsome shrub. The large, horny, glossy-green leaves are very ornamental and when each rigidly upright growth is surmounted by a gay cockade of lemon-yellow racemes, the effect is admirable. In addition to this the blossoms are deliciously fragrant, their odour suggesting a blend of Violets and Magnolia.

It is not often one sees B. japonica really well-grown, and I must confess that my own efforts have not yet been entirely satisfactory. Here, at any rate, what seems to be most appreciated by this shrub are generous top-dressings of old manure, the soil being light and dry. The probability is that a heavier and naturally richer medium would suit it better. This Berberis resents transplanting and requires years to recover from much root disturbance. Even when established, both B. japonica and B. Bealei sometimes die back suddenly almost to the base through no apparent cause.

It is worthy of note that although the racemes of flower buds were fully exposed to the severe frosts (over twenty degrees) of December, they suffered no injury. The same frost stripped every bud off Pieris formosa, and most of those off P. japonica growing close by. *J., N. Wales.*

FRUITING OF RIBES SPECIOSUM.

I was interested to learn (p. 173) that Ribes speciosum regularly produces a crop of fruits at Bodnant, and thank Mr. Puddle for the information, and congratulate him on his success. My remarks on the pruning of the bush, viz., "the removal of the older wood so soon as the flowers are over," were perhaps, badly expressed, but the method does not materially differ from Mr. Puddle's much clearer instructions of "thinning the growths to prevent overcrowding" the main difference in treatment is in the season of pruning, for while he thins the shoots in winter, I do so after the flowering season is over, which I still think is the best time for pruning all early-flowering shrubs. I shall leave our plants unpruned this season, and note if any berries are produced, but I am not alone in noting their absence in this country, as Mr. W. J. Bean in *Trees and Shrubs Hardy in the British Isles*, vol. II, p. 408, states of this plant: "fruit . . . . . . rarely seen in this country." *A. T. H.*

ORCHID NOTES AND GLEANINGS.

CYMBIDIUM PHOEBE.

This pretty hybrid (Fig 114) is the result of crossing C. eburneo-Lowianum concolor with C. Alexanderi and examples exhibited at the Royal Horticultural Society's Hall on Tuesday, March 9, by J. J. Joicey, Esq. (gr. Mr. J. Mackay), were greatly admired. There are several varietal forms of the hybrid, and two were exhibited on the occasion referred to, while other seedlings from this cross have yet to flower at The Hill, Witley, Surrey.

In the particular variety illustrated on page 231 the flowers are of palest cream colour with a faint tint of green, while the usual markings on the lip so characteristic of descent from C. Lowianum are very subdued, indeed, they have almost disappeared, thus showing that the peculiarities of C. Lowianum concolor are continued in its progeny.

ODONTOGLOSSUM CERVANTESII VAR. DECORUM MAGNIFICUM, RICHARD ASHWORTH VARIETY.

Richard Ashworth, Esq., Ashlands, Newchurch, Manchester, sends a five-flowered inflorescence of his remarkable form of O. Cervantesii decorum which surpasses the original in every respect. The species was introduced by Messrs. Loddiges in 1847., their form having the labellum but little serrated. The plant was often called O. membranaceum in gardens. The variety decorum was described by Reichenbach in *The Gardeners' Chronicle*, 1878, p. 527. the large-toothed and decorated lip being a marked feature. The late Sir Trevor Lawrence obtained a First-Class Certificate for this Orchid, February 14, 1877.

Mr. Ashworth's variety has flowers over two inches across, all the segments being broad. The white sepals and petals have purple curved lines on the base around the column, and the large and irregularly lobed lip has purple lines at the base as on the petals, also purple markings on the front lobe.

NEW HYBRID ORCHIDS.

(*Continued from February* 20, *p*. 132).

Name.	Parentage.	Exhibitor.
Cattleya Remy Chollet	Monarch × Trianae ignea	Sanders.
Cymbidium Andreanum	Pauwelsii × Glasgow	Mon. Th. Pauwels.
Cymbidium Fearnley Sander	Lowio-grandiflorum × Ceres	Sanders
Cymbidium Gloriosa	Holfordianum × Swallow	Mon. Th. Pauwels.
Cymbidium Louisiae	Andreanum × Pauwelsii	Mon. Th. Pauwels.
Cymbidium Mary Sander	Sybil var. Primrose × Pauwelsii	Sanders.
Cymbidium Moonbeam	Holfordianum × Erin	Sanders.
Cymbidium Moonlight	Holfordianum × Alabaster	Sanders.
Cymbidium Penelope	eburneo-Lowianum × Lowio-grandiflorum	Sanders.
Cymbidium Phillida	gattonense × Alexanderi	Cowan and Co.
Cymbidium Ralph Sander	J. Davis var. Cooperi × Pauwelsii	Sanders.
Cypripedium Almedraco	Alcimeda × Draco	R. Paterson, Esq.
Cypripedium Amicus	Armistice II × Actaeus var. Lady Greensleeves	Mrs. Bruce and Miss Wrigley.
Cypripedium Argosy	Argo × Leeanum '	R. Paterson, Esq.
Cypripedium Ashton	Christopher × San-Actaeus	Mrs. M. Smith.
Cypripedium Bastion	Invincible × Pyramus	Mrs. Bruce and Miss Wrigley.
Cypripedium Boreas	Mrs. D. Salamon × King George V	R. Paterson, Esq.
Cypripedium Dos	Mrs. F. Sander × Psyche	Clive Cookson, Esq.
Cypripedium Earl King	Earl Tankerville × Eurybiades	R. Paterson, Esq.
Cypripedium Eurydina	Idina × Eurybiades	R. Paterson, Esq.
Cypripedium Evansiae	Desdemona × Memoria Jerninghamiae	Mr. J. Evans.
Cypripedium Georgina	Perseus × Little Gem	Black & Flory.
Cypripedium Kia-Ora	Alcibiades × Trinculo	Black & Flory.
Cypripedium Pathan	Pyramus × Eurybiades	Armstrong & Brown.
Cypripedium Peerless	Curtisii Sanderae × Holdenii	Armstrong & Brown.
Cypripedium Queen Lucie	Queen Alexandra × Lucifer	R. Paterson, Esq.
Cypripedium Sir J. M. Barrie	Lord Wolmer × Floryi	Black & Flory.
*Cypripedium Sir Trevor	Casella × Christopher	G. F. Moore, Esq.
Cypripedium Thomdraco	Bob Thompson × Draco	R. Paterson, Esq.
Cypripedium Vesper	Vivid II × Alcibiades var. illustrious	Mrs. Bruce and Miss Wrigley.
Cypripedium Warden Surprise	Alcibiades var. illustris × Bantam, Cookson's var.	Clive Cookson, Esq.
Laelio-Cattleya Glow	L. C. Invincible × C. Empress Frederick	Sanders.
Laelio-Cattleya Percibel	L.-C. Bella × C. Percivaliana	Sanders.
Laelio-Cattleya Rheingold	L.-C. Duvaliana × C. Dowiana	Mr. Paul Wolter.
Laelio-Cattleya Rheinnixe	C. labiata × L.-C. Duvaliana	Mr. Paul Wolter.
Odontioda Dragon	Vuylstekeae × Orestes	J. & A. McBean.
Odontioda Hon. Mrs. Sutton	Devossiana × Gladys	Sutton Bros.
Odontoglossum Crisambo	crispo-Solon × Sambo	J. & A. McBean.
Odontoglossum Fairello	Fairlawn × Othello	C. J. Lucas, Esq.
Odontoglossum Mariana	Empress of India × Gorizia	J. & A. McBean.
Odontoglossum Wolterianum	Doris × Harryanum	Mr. Paul Wolter.
Sophro-Laelio-Cattleya Edna var. Mrs. Hanmer	S.-L.-C. Marathon × C. Hardyana	J. & A. McBean.
Sophro-Laelio-Cattleya Sophronisba	L.-C. Luminosa × S.-C. Thwaitesii	Mrs. Bruce and Miss Wrigley

* Corrected from February 20, p. 182.

INDOOR PLANTS.

ALLAMANDAS.

Few plants are more thoroughly appreciated for the embellishment of the warm house than Allamandas, and for splendour and effectiveness when in flower they have scarcely an equal. The fact that they are deciduous and lose their leaves more or less during the dull period of the year adds to their advantage as roof plants, as it enables the light to pass directly to the plants underneath without hindrance at a season when every ray of light is of great importance.

The main essentials of cultivation are abundance of light, heat, atmospheric moisture and an open, yet rather rich compost. In common with all quick-growing plants, they should receive every encouragement possible from the time they begin to make new growth until they commence to flower.

Young plants should be repotted before they become pot-bound, because every check tends to throw them into premature flowering, but over-potting must be guarded against, as if the plants are shifted into large pots before they have reasonably filled those in which they are growing, the soil is liable to become sour, and the plants will acquire an unhealthy appearance in consequence.

The compost in which the members of this genus grow most satisfactorily is one consisting of three parts good turfy loam, one part peat, and one part decayed manure, with sufficient coarse sand to render the soil porous. The compost should be used in a lumpy state, and the ingredients should be mixed thoroughly. The most suitable time for repotting specimens is just before they begin to make new growth; those which are planted out in boxes or permanent borders should have as much old soil removed as practicable, and receive a top-dressing of the potting mixture with a little bone-meal added. It is a common occurrence to meet with large plants growing luxuriously yet producing few flowers. This is frequently due to want of light, and those who have hitherto failed in flowering their plants satisfactorily may rest assured that by exposing them more freely to light during all stages of growth a fine and abundant flowering may be secured. Allamandas should only be shaded from very brilliant sunshine, and there will be no fear of scorching if the house is properly ventilated and the walls and floors sprinkled frequently to promote plenty of atmospheric moisture. During the season of growth abundance of water at the roots is necessary, and occasional applications of liquid manure are beneficial, while daily overhead syringings should be practised until flowering commences. After flowering, water should be partially withheld to ensure a season of rest. Pruning, which consists in cutting back the previous season's growth to within two or three eyes of the base, may be done about mid-winter.

The best species for all purposes are A. cathartica, A. grandiflora, A. Hendersonii, A. Schottii and A. Wardleana. *A. P. C.*

HEERIA ELEGANS.

Although the author of *The English Rock Garden* does not write very highly of this Mexican Melastomad, it not being sufficiently hardy to withstand a severe winter in the open, there are many who, seeing it exhibited at Chelsea, admired it greatly. It is an easy plant to propagate. Young growths two inches long, inserted at any season, root quickly. When planted out the long, trailing growths ramble over the stones and develop roots at every joint.

Heeria elegans is an evergreen herb forming a spreading mat of slender stems clothed with small, glabrous, bright green leaves. The Buttercup-shaped flowers, one inch in diameter, are freely borne along the stems; they are deep rosy-pink in colour, with a cluster of curious, claw-like stamens common to other members of the order.

In the cool greenhouse it best displays its charm when planted out and covering a low wall. The neat, dense carpet of foliage is an appropriate setting for the many blossoms. *Fred W. Jeffery.*

HARDY FLOWER BORDER.

HOLLYHOCKS.

It is not generally known that Hollyhocks may be grown and flowered successfully the same year from seeds. In January, 1924, I sowed a box each of three colours when sowing Antirrhinums, and the seeds germinated very freely. The seedlings were not pricked out but planted direct from the seed-box into the open ground in April.

The young plants grew very freely and every one bloomed. They started throwing up flower-spikes in June, and by the middle of August were in full bloom, the stems averaging about six feet in height; they came very true to colour. I thought the wet season of 1924 may have hastened growth and the subsequent blooming of the plants. Although I sowed again last year I did not expect to have the same result; indeed, I did not sow the seeds until February and through lack of space so soon as the seedlings had germinated they were placed in a cold frame. This checked them severely and when they were planted out in April they were quite small, some plants only possessing two leaves. The soil had been well-prepared two spits deep and liberally manured. The Hollyhocks grew freely, but when drought set in I gave up hopes of them blooming. However, they grew as freely as those of the previous year. They were not once watered, yet they bloomed in August. The flower-spikes were not so tall as in the previous year which was an advantage, for they were not top-heavy. The seeds were saved from double flowers, and all the plants gave full, double blooms true to colour. The pinks were the first to show colour, then crimson, next white and lastly yellow. There was no sign of rust disease, every leaf being perfectly healthy from the base upwards.

Old plants usually lose their basal leaves by blooming time, which detracts from their beauty.

Grown as annuals Hollyhocks commence blooming about one month later than the usual time, and fill in an important gap between the blossoming of tall-growing summer and autumn-flowering plants for the back of a large border. *R. Gardner, Cobham.*

A GOOD EDGING PLANT.

One of the most attractive subjects as an edging for herbaceous borders, Rose beds, etc., is Lavendula vera nana atropurpurea, a plant of neat, compact, exceedingly dwarf, bushy growth, and with silvery grey foliage.

The plant is freely covered with dainty spikes of rich, purplish-blue, sweetly-scented flowers in summer. *W. Logan.*

ALPINE GARDEN.

DAPHNE BLAGYANA

When partially clothing a half-submerged stone, and in the company of some of the early-flowering Rhododendrons with a near-by plant of Camellia latifolia opening its brilliant blossoms, Daphne Blagyana is indeed a delightful plant, its beauty being greatly enhanced by such environment. So placed, and in soil congenial to its neighbours, this beautiful plant thrives and flowers freely, the fragrance of the white tubular flowers being an added charm.

The flowers are developed in terminal umbels; the leaves are alternate, lanceolate and glabrous. This somewhat procumbent plant does not usually exceed one foot in height. It is a hardy evergreen and was introduced from the mountains of eastern Europe in 1872; I recently saw this Daphne, growing as described above, and it was one of the choicest of many choice plants in flower. *Ralph E. Arnold.*

PRIMULA FRONDOSA.

Primula frondosa needs no introductions to rock garden enthusiasts, as it is now so well known and cherished by all as one of the first favourites among the earlier flowering Primulas. Though it lacks the charming daintiness of the British species, P. farinosa, which it closely resembles, it also lacks that uncertainty of temper which has caused disappointment to many who have endeavoured to grow and keep the well-known "Bird's-eye" Primula. This lack of daintiness is more than counter-balanced by the fact that P. frondosa is of robust constitution and easy culture, and succeeds in any light compost or soil thus making it an indispensable plant to those who cannot afford to keep replacing P. farinosa when it does not succeed. When planted on the rock garden, P. frondosa should be given a well-drained position, so that it does not become too wet in winter, and is shaded from the full summer sun so that the plants do not dry out during hot weather. In such conditions it will flourish, forming neat rosettes of leaves from which flowers and, later, seeds are produced freely. The only attention necessary is to keep the ground free from weeds and loose on the surface to prevent excessive evaporation, and the removal of old leaves from the plants so soon as they show signs of decay. A light top-dressing of loam, leaf-mould and sand may be advantageously applied in January.

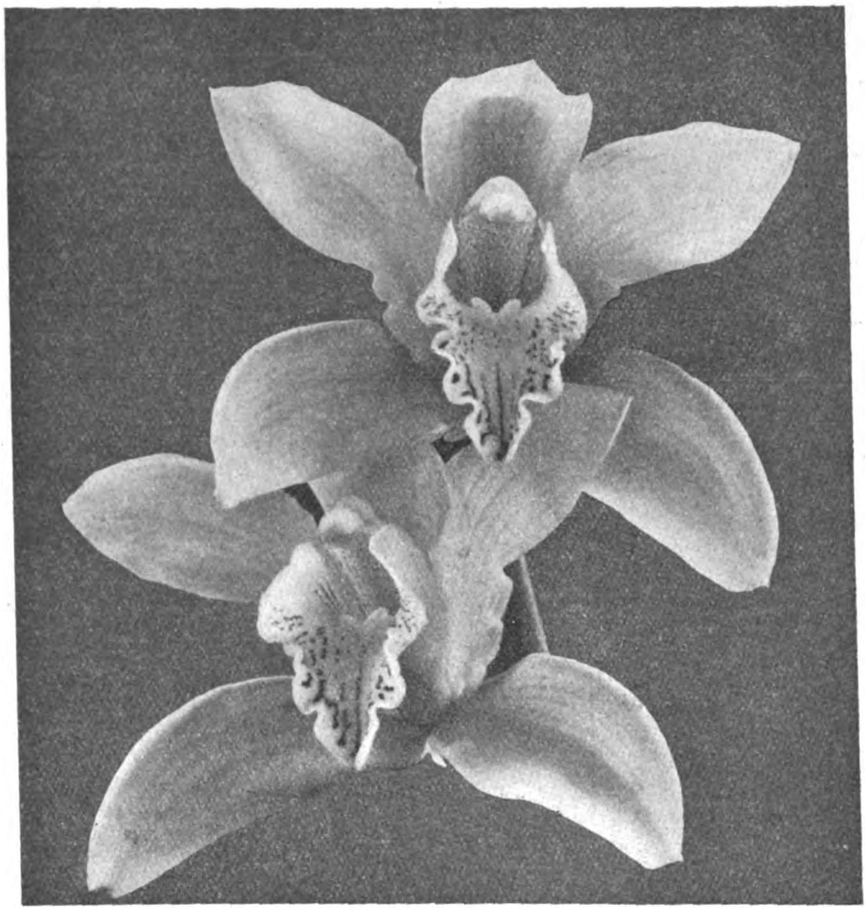

FIG. 114.—CYMBIDIUM PHOEBE.

(see p. 230.)

For those who are fortunate enough to possess an alpine house, P. frondosa (Fig. 112 p. 227) makes an excellent subject for providing a supply of bloom about March, either grown in shallow pans or as single specimens in four-inch or five-inch pots. In a house it is no doubt seen to best advantage; its stems and crinkled grey leaves copiously covered with white meal or farina, giving it a very handsome appearance. The scapes of numerous pink flowers with a yellow eye, borne on slender three-inch stems, contrast very pleasantly with the grey foliage. *R. B.*

DRABA DEDEANA.

The pretty little Draba known as D. Dedeana, and its varieties Mawii (or Maweana), and Zapateri are unique in the class to which they belong, through the possession of white, instead of the yellow flowers, of all others in this class; it is distinguished also by growing into tufts or cushions and having the foliage edged with spiny teeth.

This species of Draba, like others of the genus, is not greatly sought after by certain owners of rock gardens, who see in the minute flowers and small cushions a plant less to their mind than some more showy subjects. Yet it is very beautiful when established in gritty soil and with its vivid green rosettes, in tufts, freely spangled in their season with many pure white flowers set about two inches above the leaves. There is little difference between the type and D. Mawii, but the latter has narrower, smaller leaves and is less floriferous. The form Zapateri is perhaps the best, and it has pure white flowers with yellow anthers and closely-packed rosettes of vivid green. Plants may be purchased in pots and planted at any time. *S. Arnott.*

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MR. F. KINGDON WARD'S EIGHTH EXPEDITION IN ASIA.*

XXVIII.—THE PICK OF THE HERBACEOUS PLANTS.

I HAVE no hesitation in stating that far and away the most valuable herbaceous plant introduced as a result of this expedition is the giant Cowslip Primula, P. Florindae (K.W. 5781). It has every possible attribute of a first-class hardy plant—size, colour, fragrance, and habit. Above all it has that elusive air of breeding and dignity which may be summed up in the word quality. Its hardiness is above suspicion, for it is a semi-aquatic plant from a moderate elevation (12,000 feet), and being something more than a biennial, though of no great longevity, will have no difficulty in settling down with us and thoroughly establishing itself.

Primula Florindae is, in my opinion, not only the finest 'Sikkimensis,' but the finest Primula in cultivation, and one may safely prophecy that its great colonies will soon become a familiar sight. Is it not strange to reflect on this wonderful plant lying hidden in the remote fastness of Tibet for so many centuries, or, perhaps, thousands of years, wasting its fragrance on the desert air, and now at last brought ten thousand miles so that men may see it—since most of us cannot go to it!

Then the other two 'Sikkimensis' Primulas, P. Waltonii and P. microdonta must come near the head of the poll, not only for their personal merits, but for two other important reasons, namely, their colour range and powers of hybridisation, and their undoubted hardiness and ease of culture. P. microdonta var. alpicola is the Moonlight 'Sikkimensis' (K.W. 5746), while K.W. 5818 is another variety of P. microdonta called violacea—though, actually, the flowers are other colours besides violet, such as maroon, vinous-purple, and milk white. Still another variety of the same species is K.W. 6117, which has a candelabra-like habit, with three or even four whorls of sulphur or white flowers. P. Waltonii (K.W. 6094 and K.W. 6430) has glossy, velvet flowers of rich port wine red. If these reds and violets can be crossed with P. Florindae, as seems probable, so as to give us that remarkable plant in a variety of colours, the 'Sikkimensis' group need fear no comparison with others. P. pudibunda (K.W. 5906), of the same association, is a fragrant and pleasing dwarf, which is effective in mass; but it hardly comes up to the others in style.

Out of about a dozen species of Meconopsis found I may select two which stand in a class by themselves. The genus is notoriously a difficult one to do justice to in the garden, and out of some three dozen species which have been raised at one time or another, hardly half-a-dozen can be called an unqualified success. It is necessary, therefore, to approach this group from a rather different angle, and select, not necessarily the most beautiful, but those most likely to be hardy; for if there are any which can be grown with ease, we shall be content with them. My two first choice then will be M. Baileyi and M. Florindae, both new to cultivation, and the second a new species.

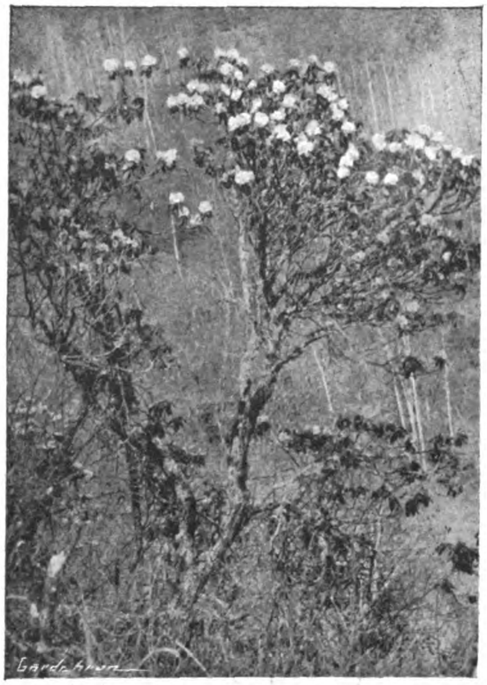

FIG. 115.—'TALIENSE' RHODODENDRON. (K.W. 5656.)

M. Baileyi (K.W. 5784), is as fine a species as any in existence, a tall robust perennial with handsome foliage and sky-blue flowers which come darting and floating from amongst the large sea-green leaves like a troop of blue butterflies. It is a woodland plant from 12,000feet, with every appearance of hardiness.

M. Florindae (K.W. 6038) is not nearly so handsome as the last, but is unique in being the only dwarf, yellow-flowered Meconopsis known. It is only a biennial, or possibly an annual, and as it also comes from woods at 12,000 feet, its hardiness is likewise almost above suspicion.

The other species of Meconopsis I pass over in gloomy silence; they can speak for themselves, or henceforth for ever hold their tongue—which is more probably what they will do.

Were I a sporting man, I would certainly put half-a-crown each way on the pink Martagon Lily (K.W. 6034). In size, colour, fragrance, and general robustness it looks a thoroughbred, and at its best it is certainly one of the most splendid of its kind—far finer in my opinion than L. Duchartrei. Though unaccustomed to high altitudes, it ought to prove quite as hardy as any other eastern Lily, not one of which comes from a high altitude.

I found no typical Nomocharis—at least, not in flower, though a plant found in fruit in the Tsangpo gorge and in Pemako (K.W. 6232), might be a Nomocharis. But the little, purple-flowered plant, K.W. 5809, is certainly a Nomocharis according to the latest definition of that genus (see paper by W. Edgar Evans in *Note Roy. Bot. Gdn., Edinburgh*, June, 1925). The colour of the flower is like that of N. nana, but it is a smaller plant with broader leaves and a larger perianth, in habit resembling the yellow-flowered plant long known as Lilium lophophorum, now Nomocharis lophophora. This, K.W. 5809, I take to be a new species, and an interesting one, having characters intermediate between the Chinese and Himalayan representatives of the section 'Oxypetala.'

Amongst the Gentians there is one plant of outstanding merit, G. Waltonii (K.W. 6221), known from a specimen collected during the Tibet Mission of 1904, but not in cultivation. It is a really magnificent species, in the way of G. asclepiadea, but with flowers more numerous, of a more incisive blue, and on longer stems. It comes from a rather low altitude, about 10,500 feet, but that should not trouble it if our damp winters are not too much for it. Probably it will settle down and readjust itself to our climate as G. sino-ornata has done, flowering in the winter. Normally, it flowers in October during the fine, dry autumn weather, its lolling stems, weighted with their load of blue urns, forming streamers of colour on the driest gravel slopes. Full sunshine and a well-drained, light soil are its chiefest needs. It is perennial.

In the same breath I might mention another brilliant blue flower, though in other respects quite a different plant; this is the pale, glossy. blue-flowered Onosma, K.W. 5965, (not to be confused with the other Onosma, K.W. 6115, which is an inferior species). This Onosma comes from distinctly low down, never occurring much above 9,500 feet, but it need not be condemned out of hand on that account; the fact is it only grows in pure sand, and in such a tip-tilted country pure sand is not to be had except in the widest river valleys. It is a charming plant, growing erect, its hoary stems hung all over with little pale blue tubes, like blown glass. Like the Gentian, it favours any amount of sunshine and a loose sandy soil into which it can send its long tap root.

Another interesting plant of the same family is the dwarf Myosotis (or is it Erytrichium ?), K. W. 6015 and K.W. 6028. Though very small, never reaching four inches in height, its tiny flowers are crowded into a bright, blue powder-puff, and the whole effect, with its rather large leaves, covered with a regular spider's web of cottony hair, is very dainty. Like the last, with which it grows, it prefers the open air and poor soil; indeed, I found it smothering a fallow field, the exhausted soil of which was being given a rest. It grows also in the hard, gravelly soil of abandoned river terraces. It appears to be an annual, and I put it in the first rank by reason of its delicate porcelain-blue flowers and compact habit.

I have already described our best contributions to the genus Primula, but it may be asked why I have mentioned only four species out of a collection of forty. The reason is simply that of the remaining novelties there is hardly one which combines undoubted excellence with infallible hardihood. Both P. altrodentata (K.W. 5664) and P. pseudocapitata (K.W. 6184) are charming plants, and hardy enough; but these are old friends. P. latisecta (K.W. 5819) is new, and doubtless at least as hardy as its relatives from China, P. Veitchii and P. likiangensis; but it is not quite in the first flight. And so on through the list.

But there are two species, so distinct and so delightful that though I have serious qualms as to their usefulness in the garden, I cannot forbear to mention them, simply because I am pessimistic about their future. In any case, one may hope that growers will raise them, and look tenderly upon them once before a cruel fate tears them for ever from their loving embrace. These two plants are P. Baileyana (K.W. 5985), a cliff plant of the 'Rotundifolia' section, and P. falcifolia (K.W. 5839), a marsh or meadow plant having affinities with the 'Nivalis' section.

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* The previous articles by Mr. Kingdon Ward were published in our issues of April 12, May 17, June 21, August 3, August 30, September 27, November 1, 1924; April 4, May 9, June 6, June 20, July 4, July 18, August 4, August 15, September 5, September 19, October 19, October 24, November 21, December 5, December 39, 1925; January 2, January 16, February 13, February 27, and March 13, 1926.

P. Baileyana (see Fig. 100, p. 207) is a little beauty, of tidy habit, with rich violet flowers in a small head, and leaves, the under surface of which is argent, with snow-white meal. Its doubtfulness lies in the fact that it comes from gneiss cliffs at 14,000 feet; and few, if any, alpine rock Primulas are really hardy with us. They just disappear—no one knows quite when, or why.

P. falcifolia, the Daffodil Primula, is unique in the genus. It has rather the appearance and habit of P. vincaeflora. Its greater assets are its delightful colour and delicious fragrance. In so far as it is a 'Nivalid,' or even an 'Omphalogramma,' past experience warns us that it will be a difficult subject; but against that we have to set the fact that it grows as low down as 11,500 feet, and further, that it is practically a bog plant, or would respond to treatment as such. Therefore, despite our forebodings, it may prove quite hardy.

Saxifrages in Tibet are, of course, legion, but out of about fifteen species collected I was only really quite pleased with two (K.W. 5912 and K.W. 5979). These belong, I take it, to the 'mossies.' Both are alpines, though they grow best on banks under the Rhododendron bushes, where their nodding flowers are seen to advantage. Each short, leafy stem ends in a single flower, purple in the former, Buttercup yellow in the latter. They grow rather sparsely, but would be more effective in drifts, mingled with each other.

Two species of Cyananthus call for attention. K.W. 6082 is the more handsome, but K.W. 5949, a variety of C. lobatus, is probably the hardier, both in its procumbent ramping form and in its erect alpine form. K.W. 6082, a new species, has already flowered under glass with Major F. C. Stern, but I am a little suspicious of its constitution, the long, silken hairs which clothe the entire plant suggesting a dislike of water at the wrong season—it certainly does not mind moisture in the summer. However, it is not a high alpine, like C. incanus; in fact, it comes from slightly more elevated regions than does the pretty C. Delavayi.

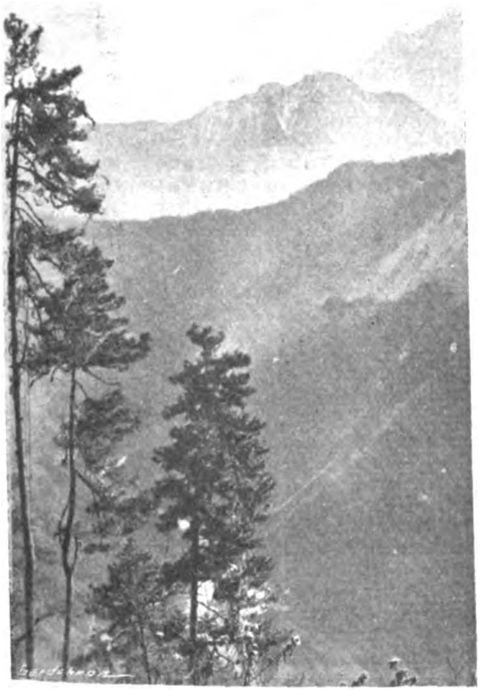

FIG. 117.—PINE FOREST.

One species of Clematis (K.W. 6290) is worth remembering. It has the thimble-shaped, nodding flowers of C. nutans, but in this case they are a delicate shade of cream. It is a winter-flowering plant from lower altitudes than most of our plants.

In any selection of the best met with, it appears both rash and unjustifiable to mention plants not seen in flower; yet I cannot conclude this brief survey without allusion to four plants, since internal evidence alone furnishes certain clues. For example, there can be few Lilies which are unworthy of cultivation, and without hazarding a guess as to what the 'Bhutan Lily' (K.W. 6428) may be, I think it may be well worth watching. The dwarf Iris (K.W. 6289) coming from an altitude of not more than 9,500 feet may well be something out of the common; and since it is accustomed to perpetual rain, winter and summer, and can withstand a fair degree of cold, it ought to be satisfied with our climate. A species of Codonopsis (K.W. 6371), is perhaps only a dull, pawky twiner, but its bright purple fruits prepare one for something better; while the big Incarvillea from the dry gravel slopes (K.W. 5623), though it may be only the big, yellow-flowered I. lutea, may at any rate, be a form of it which will grow and bloom in this country.

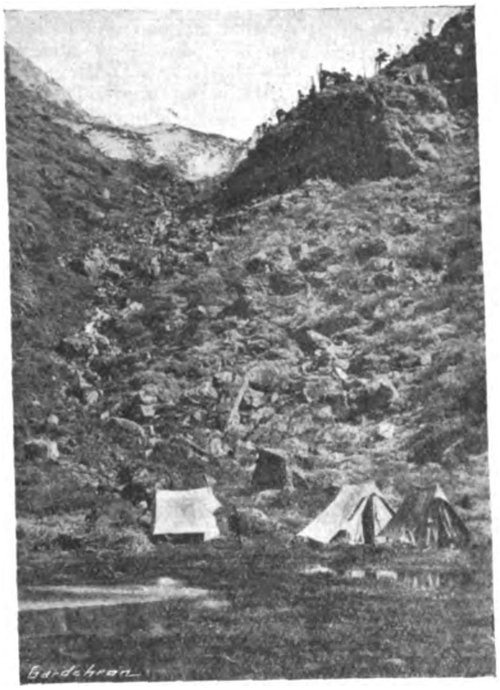

FIG. 116.—CAMP AT THE DOSHONG LA IN A WILDERNESS OF DWARF RHODODENDRON.

I enclose four more photographs (Figs. 115, 116, 117, 118) to further indicate the nature of the country covered by this expedition. *F. Kingdon Ward.*

CLASSICAL AND LEGENDARY GARDENS.

IV.—The Garden of Eden.

Far surpassing in fame any of the legendary gardens thus far included was the Paradise of the Jews with its Assyrian counterpart. It has never lost its charm, and the story is read to-day in hundreds of tongues, and in every part of the globe. First as to the site of the garden "A river went out of Eden (states the narrator, *Genesis* ii, 10) to water the garden, and from thence it was parted and became into four heads. The name of the first is Pison: that is it which compasseth the whole land of Havilah, where there is gold. And the name of the second river is Gihon: the same is it that compasseth the whole land of Ethiopia (or Cush). And the name of the third river is Hiddekel: that is it which goeth toward the east of Assyria. And the fourth river is Euphrates."

Notwithstanding the apparent definiteness in the matter of names and geography, nothing that is reliable is to be gathered from this description. At the same time it seems clear that when the legend first took form the authors of it had in mind a locality which was well-known, and the eye naturally turns towards Mesopotamia. In his *Chaldean Account of Genesis*, George Smith informs us that there is nothing in the Babylonian tablets relating to the Creation to show that the historians had any knowledge of the Garden of Eden or of the Tree of Knowledge as described by the Hebrew author, though an obscure allusion may be found to the idea that a thirst for knowledge was the cause of the Fall. The general body of the Assyrian texts, however, contains such statements as to lead Rawlinson to observe a general agreement between the Garden of Eden and the Babylonian region named Karduniyas, or Ganduniyas. "Eden is a fruitful place, watered by the four rivers, Euphrates, Hiddekel, Gihon and Pison; and Ganduniyas is similar in description, watered by the four rivers, Euphrates, Tigris, Surappi and Ukin." A delightful volume by Donald Maxwell recently published bears the title *A Dweller in Mesopotamia: Being the Adventures of an Official Artist in the Garden of Eden*; and this is in harmony with general opinion. The whole question, however, was discussed many years ago in a learned volume by the German Commentator and Hebraist, Professor Delitzsch, entitled, *Wo lag das Paradies*. Pinches has more recently discovered the name Paradise under the form Pardêsu in some Babylonian tablets. It appears to be the name of a country, probably mythological, being coupled with the land of Bit Napsanu. The great Bible Dictionaries and Encyclopaedias have much to say on the subject and to them reference may be made for fuller information.

It was but natural that loyal Jews should wish, to link up the Garden of Eden with the Holy City. Four towers on the Mount of Olives still remain of the great fortress where the Crusaders made one of their last stands against their conquerors. The natives call it Jebel Fereidis, or Mount Paradise.

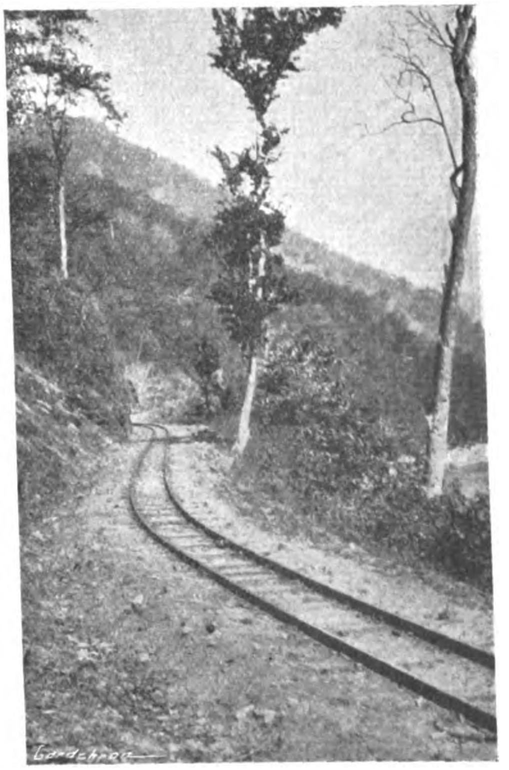

FIG. 118.—THE ROAD HOME.

We next observe that the Garden of Eden was planned and planted by a divine husbandman. "And the Lord God planted a garden eastward in Eden: and there he put the man whom he had formed." Evidently the narrator had a lofty conception of the first gardener, as Bacon calls him. The spot he chose was the most delightful for situation, it was watered by

a river, it faced the sunrise, and its fertility was unbounded. Man was to dwell in a place of beauty, to be supplied with everything which was desirable, and spend his life in a dream. Very essential was the perennial stream. Hebrew writers often use the figure of the well-watered garden, and it is full of the most pleasing suggestions. This ideal garden lacked nothing which was essential to man's happiness and well-being; for "Out of the ground made the Lord God to grow every tree that is pleasant to the sight, and good for food; the tree of life also in the midst of the garden, and the tree of knowledge of good and evil."

There has naturally been much speculation respecting these various trees. Some were purely ornamental or "pleasant to the sight." Their beauty may have been due to the delightful blossoms with which they were adorned, the varied foliage, the graceful shape, the alluring perfume, or the unusual habit. Popular fancy has fixed upon this tree and that as having been grown in Eden, but on these we have no need to spend our time. One allusion, however, may be allowed. Milton's description is too beautiful to be passed by in silence (*Paradise Lost*, IV, 250 seq.). On the lawns or level downs and in the lap of a valley flourished—

"Flow'rs of all hue, and without thorn
the Rose."

Who, called to prune his Alberic Barbier and other ramblers, would not wish to re-enter Paradise, and find the thornless Rose? The authorities for this enviable plant are St. Basil and St. Ambrose.

Turning to the Tree of Life, we find a variety of suggestions and traditions. Some held it to be the Palm. This was reasonable in a region where Dates were the staff of life. On some Jewish coins "the Palm tree and Palm-branch constantly occur, the latter with its two bunches of Grapes approaching to the old Phoenician and Assyrian representations of the Tree of Life," states Conder (*Syrian Stone-Lore*, p. 224). For "the story of the Tree of Life was known not only to the Babylonians but also to the Phoenicians, as preserved by Sanchoniathon" (*ib.*, 72). Some writers hold that the Banana was the Tree of Life, and that the large leaves for which it is famous were the Fig leaves which the fallen inhabitants of Eden used as their garments. Naturally the Vine comes in as another claimant to the honour, and the Orange. This is surely the fruit which was in the thoughts of Milton when he wrote the following lines:—

"In this pleasant soil
His far more pleasant garden God ordain'd.
Out of the fertile ground he caus'd to grow
All trees of noblest kind for sight, smell,
taste;
And all amid them stood the Tree of Life,
High, eminent, blooming ambrosial fruit
of vegetable gold."
(*Par. Lost.* IV., 215).

And a little later (*l.* 246)—

"Thus was this place
A happy rural seat of various view;
Groves whose rich trees wept odorous
gums and balms,
Others whose fruit burnished with golden
rind
Hung amiable . . . and of delicious
taste."

George Smith thinks the Tree of Life is the equivalent of the Sacred Grove of Anu, which in the Babylonian legend was guarded by a sword which turned to all the four points of the compass. "In several other places in the legends, and especially in the legends of Izdubar, there are allusions to the tree, grove or forest of the gods, and this divine tree or grove is often represented on the sculptures, both in the Babylonian gem engravings, and on the walls of the Assyrian palaces and temples, When the representation is complete the tree is attended by two figures of Cherubim, one on each side of the sacred emblem." Here it is interesting to note the remarks of Maxwell:—

"Beside the fertile tracts of country above Hit on the Euphrates—a land which has been identified as the Sumerian Garden of Eden—stretches a wild and desolate region, a place of bitumen and smoke, of incrusted salt and sulphur, of rock and fiery heat—known to the Arabs as the Mouth of Hell. It guards the garden from approach by the nature of its inhospitable ground and so I have called it the Desert of the Flaming Sword."

The tree of knowledge of good and evil is, of course, fabulous. It points, as already indicated, to the idea that man's Fall was due to his indulging his desire for knowledge.

"And next to life
Our death, the Tree of Knowledge grew
fast by,
Knowledge of good bought dear by knowing
ill."

The fact that two trees are mentioned has given rise to much learned discussion. If the Eden story, as we have it, resulted from the blending of two versions, then in the one the Tree of Life and in the other the Tree of Knowledge may have been the central point, the two names being synonymous. Legends have a basis in fact, and the legend of an invaluable tree which sustained life was doubtless based on the occurrence of some fruit such as the Date; while the attempt to solve the problem of the Fall led to the mythical Tree of Knowledge.

Later folklore has much to tell us about the other trees and plants which grew in Eden. Among them was that which yielded the wood of the Cross. The story of the Tree of Adam has been told, among others, by Folkard in his *Plant Lore, Legends and Lyrics* and by De Gubernatis in *Myth. des Plantes.* But the subject is inexhaustible. *Hilderic Friend.*

MESEMBRYANTHEMUM.

(*Continued from page* 215).

5.—GIBBAEUM, HAW.

G. perviride, N. E. Br.—"Plant of dwarfish growth, stemless when young; when old may possibly acquire a short trailing stem like M. fissum." In another place Haworth writes: "Stem prostrate, 3 inches or more long." "Leaves about an inch long, when not drawn up weak, connate, punctate, perfect ones unequal, of a deep glossy green colour, semicylindric or subround, or in other words linear-oblong, convex on the outside and plano-concave on the inside, particularly from the middle downwards to the base, with a slight compression near the points, which are blunt." At other places the leaves are described as "Leaves oblong" or "semicylindric-triquetrous or subovate, very green." "Peduncle solitary, axillary, very short, 2-edged. Calyx small, unequally 6-fid as in M. gibbosum. Corolla a little larger and paler than in M. gibbosum. Petals very obtuse uniformly rubicund. Filaments (*i.e.*, stamens) numerous, short, spreading, white. Anthers yellowish. Styles 6, very spreading, as long as the filaments, subulate with the tips recurved, subvillose."

"Flowers in March, before noon, but very rarely." Mesembryanthemum perviride, Haw., *Obs. Mesemb.*, p. 136 (1705); *Misc. Nat.*, p. 37; *Synop. Pl. Succ.*, p. 227; and *Rev. Pl. Succ.*, p. 104.

South Africa: Locality and collector unknown.

The above contains the whole of the descriptive characters given by Haworth. Although he originally described the leaves as "punctate," he does not repeat that character in his other descriptions, and I believe that the dots alluded to were merely spots upon the leaves made by insects or some other cause (as I have found to happen in other genera occasionally) and not subsequently seen upon the plant, and therefore not afterwards mentioned. For I believe that no member of this genus has dotted leaves such as are found on various species of true Mesembryanthemum.

G. pilosulum, N. E. Br. (Fig. 119).—Growths under natural conditions 6–9 lines in diameter and subglobose or obcordately obovoid, but under cultivation becoming 12–18 lines high, 8–12 lines broad and 6–9 lines thick, obovoid, with the lobes at the top very unequal; substance soft and fleshy, pubescent with fine spreading hairs, light green, not dotted, suffused with purple when exposed to bright sunshine. Pedicel included in the body of the growth, without bracts, moderately stout, green, adpressed-pubescent. Calyx, with the exception of the tips of its lobes, included in the body of the plant or perhaps sometimes exserted, 6-lobed down to its union with the ovary, pubescent; lobes about 2 lines long, oblong, obtuse, green, 4 of them with membranous edges. Corolla 6–8 lines in diameter, expanding in daytime, scentless; petals about 30-35, free, 3–4 lines long, ¼ line broad, linear, obtuse, bright pink. Stamens very numerous, erect; filaments white, not pubescent near the base; anthers pale yellow. Glands about 7, separate, dark green. Style none; stigmas 7, erect, with spreading tips, 2½ lines long, filiform, pale yellowish. Ovary inferior, convex on the top, 7-celled; placentas on the outer wall of the cells.

Conophytum pilosulum, N. E. Br., in *The Gardeners' Chronicle*, 1922, vol. LXXI, p. 214.

Ladismith Division: near Touwsberg Mountains, in a clayey subsoil covered with sand, Pole Evans, 6927! Between Hondewater and Warmbad, 1,700-2,000 ft. alt., Muir 3659!

I originally described this plant as being a species of Conophytum, for I had not then seen its flowers, and its appearance in every way suggests that it belonged to that genus, although pubescent and softer in substance, for the presence of cell wings to the cells of the capsule did not at that time appear to me to be such an important generic character as I now find it to be.

This plant having now flowered at Kew, I find that its floral structure is altogether different from that of Conophytum and identical with that of Gibbaeum, the calyx and corolla both being without a tube, the pedicel bractless (in Conophytum the pedicel enclosed in the body of the growth always has a pair of minute bracts near its base), and the cells of the capsule roofed with membranous cell-wings. I have therefore here given a more perfect description of the plant.

Under cultivation the growths have become much more unequally lobed than when received from South Africa, where they are more globose and simulate the growths of some species of Conophytum in form.

Fig. 119 is from a photograph sent to me by Dr. Pole Evans, and represents this species as it grows under natural conditions in South Africa.

G. pubescens, N. E. Br.—Having now been able to examine some flowers of this species preserved in fluid, the following description of them may replace that given in *The Gardeners' Chronicle*, 1922, vol. LXXI, p. 129:—Pedicel not exserted from the fissure, pubescent with deflexed adpressed white hairs. Calyx subequally 6-lobed, pubescent like the pedicel and whole plant; lobes about 2 lines long and 1½–2 lines broad, oblong or ovate, obtuse, keeled down the back. Petals numerous, free, 4–5 lines long, ⅓–½ line broad, linear, obtuse, bright rose pink. Stamens numerous, the outer about 1½ line long, the inner shorter, creamy-white, with the filaments pubescent at the base. Glands dark green. Stigmas 6 erect, ½–¾ line long, subulate; no style. Ovary convex on the top, 6-celled; placentas on the outer wall of the cells; ovules numerous in each cell.

G. pubescens, N. E. Br., in *The Gardeners' Chronicle*, 1922, vol. LXXI, p. 129, Fig. 64, A.-C., where the full synonymy is given.

Ladismith Division: At Hondewater, 1,700-2,000 ft. alt., flowering in August, Muir 3662.

I am informed by Dr. Muir, who sent the flowers to me, that this species grows in clumps that are up to 6 or 8 inches in diameter, and that when in flower it makes a fine sight, being covered with its pretty rosy flowers. As previously stated, this plant alters its appearance under cultivation in the climate of Great Britain.

G. Shandii, N. E. Br.—I am informed by Dr. J. Muir that as it grows in South Africa this species differs from its close ally, G. pubescens, not only by the nature of its pubescence, but by being greener in colour and by the larger leaf being different in shape and incurved. The flowers of this species are at present unknown.

G. Shandii, N. E. Br., in *The Gardeners' Chronicle*, 1922, vol. LXXI, p. 129, figs. D.-E. *N. E. Brown.*

(To be continued.)

FLORISTS' FLOWERS.

BORDER CARNATIONS.

To the keen amateur who specialises in the border Carnation and recognises all the good qualities which go to make it such a first-class subject for the open border, it is a source of gratification that the flower is becoming popular again, after a period, through no fault of its own, in which it has been very much neglected by the general gardening public.

Shows at which only varieties from under glass were exhibited did not give any encouragement to those who possessed no greenhouse, and consequently had no chance of competing successfully, for naturally-grown flowers and those that receive protection from the weather when their blooms are expanding are two different propositions.

Now, however, all this is altered, and the classes for blooms grown and flowered in the open border, included in the schedule of the National Carnation and Picotee Society (Southern Section) about five years ago, at my suggestion, and which had never previously been provided for, are proving a great success, and I think these classes may very possibly be the biggest attraction at the yearly shows in the future. Raisers are trying to give us flowers that possess the qualifications every hardy plant should have, self-supporting stems not being the least of these. Many otherwise desirable varieties are discarded because of a weak stem; those in commerce that have this defect generally prove to be unique in colouring or brilliancy—Linkman being a case in point.

However, it is the Fancies proper to which I wish to draw special attention, the perfect shape and colouring of the latest varieties showing what scope there is in this direction, and as I can only think of about two dozen listed names, they are certainly not over numerous. Why they were ever called "Nondescripts"—a name which is now to be dropped—is not quite clear, for yellow and white grounds have always been thus distinguished, and "Fancy" describes them most accurately.

The constitution of all I have grown leaves nothing to be desired, the open border suiting them perfectly; and those that have been shown from under glass, even so far back as the Clove-scented Mrs. A. Brotherston, still hold their own on many show boards. The vigorous Ronny Buchanan, terra-cotta and rose; Caprice, with a pink ground closely spotted with rose; Innocence, more delicately-coloured in the same tones; Maud, salmon striped, greyish old rose; Salome, flaked rosy-pink on a grey ground, which has given its name as a type to the improved varieties of similar colouring put into cultivation later; Saracen, a bold flower of lavender-grey colour striped with cerise and crimson; Verdun, handsome in reddish-brown, striped maroon and scarlet; together with other and older varieties, are favourites, and when Cleopatra, a variety of rose-madder colour, marked with scarlet appeared in 1919, it was hailed with enthusiasm. It has proved a sterling variety, and very floriferous.

Since then Saladin, lavender-grey and rose-red; The Cadi, an outstanding and brilliant variety in rose-madder, striped with blue and scarlet, every bloom of which is well-shaped; Penelope, plum-blue and rose, floriferous and a good grower; Jas. Griggs, lavender-grey and rose; Solon, strawberry, suffused heliotrope, a distinct variety; and The Moor, blood-red, marked with crimson, have all added charm to the class. The novelties put into commerce last autumn include Sam Griffiths (F.C.C., 1925), mauve ground, marked with bright cerise, a beautifully-shaped flower as shown; and Myrtle Pettigrew (F.C.C., 1924), old rose, evenly banded with scarlet, a novel flower of good form and much admired. Doris Trayler, bright scarlet, banded with deep maroon, is very taking, and fortunately possesses a strong Clove perfume; whilst a variety with a combination of grey-mauve and chocolate, which gained a certificate last summer, is, I believe, coming out this season. It is said to be of perfect border habit, and it looks a strong grower, the flower being very large. As it is named after me, I am hoping it will have a long and prosperous career.

There is one other quality which would make perfect not only these but the majority of Carnations, and that is, perfume. Because of their fragrance the Cloves, as a race, are most popular with the general public, and many beautiful varieties of this type are being raised both for exhibition and garden display. They include King of Cloves, darkest maroon; Margaret Keep, blush; Coral Clove, considered by many the best of all; Rose Clove, and Steerforth, a white ground fancy, whilst the new Winsome Clove, a beautiful rose-du-Barri flower, shown at Chelsea last spring, deserves its name.

Novelties are always largely sought at the great spring show, and one will be Royal Clove, a glorious bloom of an uncommon pink shade, very large and most powerfully scented, and said to easily surpass all the others in strength of stem and calyx; while the foliage is twice as broad as that of the old Crimson Clove. *J. B. Wells.*

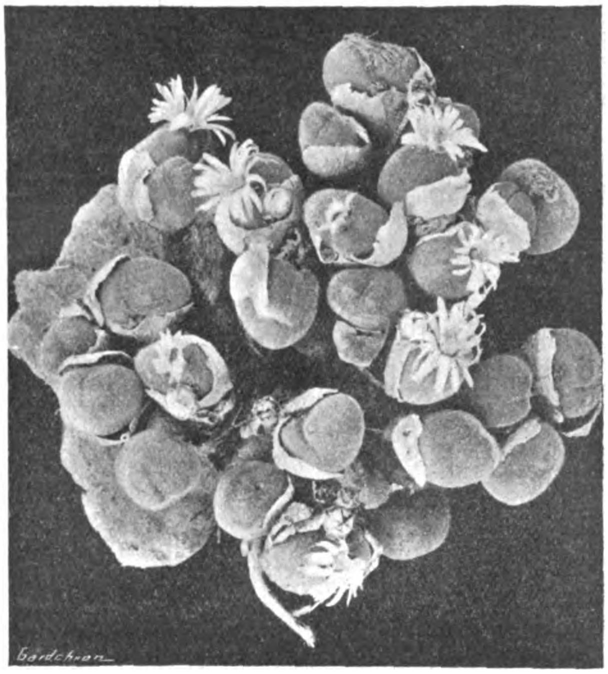

FIG. 119.—GIBBAEUM PILOSULUM, N. E. BR.

Two-third's natural size. (see p. 234).

NOTICES OF BOOKS.

Herbaceous Borders.

This little book* is well-written and contains much useful and up-to-date information on a subject which occupies a position of much prominence in our gardens to-day. It deals with aspects, soils and their preparation, backgrounds, arrangement and after-care of plants, in a concise and clear manner which should be appreciated by gardens lovers who are engaged in laying out new gardens or reconstructing old ones and are anxious to make the best of the grace, beauty and charm of our modern herbaceous plants.

The writer offers a number of designs and plans, with suggestions for planting, which should be very helpful to the amateur. A whole chapter is devoted to lists of plants excellently tabulated for colour, height and season of flowering, with special notes on plants of peculiar interest. These lists are very comprehensive but include many tender subjects likely to present difficulties to amateurs. Nomenclature is dealt with in a masterly way from the technical point of view, but it is doubtful whether the rigid adherance to newer and so-called botanically correct names is helpful to the amateur, who studies commercial lists rather than botanical books, and would fail to find Sparaxis under Dierama or Anthericum under Paradisia. The author's advice to use quicklime freely is not without danger to the inexperienced as this is the most potent form of lime, and needs much care and experience in handling.

The book is well-arranged, admirably printed, in clear type, and pleasingly free from errors, although Sidalcea candida appears as S. candicans, and Alströmeria as Aströmeria, which may, however, be printer's errors.

The Pruning of Trees and Shrubs.

MR. W. Dallimore's wide knowledge of trees and shrubs is so extensively recognised that the information he imparts concerning these subjects is sure of a hearty reception. Mr. Dallimore is a careful man, and although his long experience entitles him to the careful consideration of experts, he understands the difficulties that beset amateurs, for he has had to be a pioneer in regard to the pruning and propagation of many new trees and shrubs. In his latest work* Mr. Dallimore provides a handbook that has long been overdue, and we feel sure it will be welcomed, especially in these days when trees and shrubs are more popular and numerous than ever before.

The author first deals with principles of pruning, and we entirely agree that "the necessity for applying antiseptic and protective dressings to wounds must be taught and emphasised by indicating instances of diseased trunks occurring through the neglect of such a precaution." A chapter on "Pruning Deciduous Ornamental Trees" is particularly useful, as it sets forth the objects of pruning. The succeeding chapter on "Pruning Young Trees" is equally valuable, for so much of the future grace and beauty of a tree and shrub depend upon early and wise pruning. "Pruning Neglected Broad-leaved trees" is a chapter of special interest to owners of estates, and quite naturally, it indicates how an ugly and old specimen may be converted into a beautiful one. Concerning the preservation of old trees that have fallen into semi-decay, Mr. Dallimore has much useful information to give, and the filling of cavities is dealt with admirably and here, as elsewhere, the illustrations aid the texual directions.

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* *Herbaceous Borders for Amateurs.* By R. V. Giffard Woolley. Country Life Ltd., 20, Tavistock Street, W.C. 2. Price 5s.

* *The Pruning of Trees and Shrubs.* By W. Dallimore. Dulau and Co., Ltd., 34, Margaret Street, W. 1. Price 4s. 6d. net.

Further chapters in this useful book are those on "Pruning Flowering Trees," "Pruning Hedges," and "Pruning Shrubs." This last contains an alphabetical list of shrubs with the kind of pruning required by each, and includes special reference to ligneous climbers. The book is well printed, and we are glad to see the excellent illustrations are bound through the sheets and not pasted in.

The Dahlia.

THIS little pamphlet*—for it is scarcely more—is well conceived, and will be found useful to many amateurs taking up the cultivation of the Dahlia for the first time. It begins with a historic note on the introduction of the Dahlia into Europe, and incidentally the correct date—1798—is given for its first appearance in England. As regards its cultivation in Belgium, M. Donkelaar (should it not be Donckelaar ?) is named as being Curator of the Botanic Garden at Louvain, but M. Krelage, speaking at Amsterdam in September, 1923, placed him at Liége. As the whole brochure occupies only forty-two pages, each of the sections is necessarily curtailed, and comparative values are scarcely sufficiently considered; for instance, to "Culture Ordinaire" is assigned only two-and-a-half pages, while the historical note occupies six and-a-half, and a page-and-a-half, as well as two illustrations, are devoted to arranging cut flowers in vases. The section on propagation is one of the best, though it would have been better if the diagrams had been placed rather less than sixteen pages away from the text they are supposed to illustrate. The illustrations, as a whole, are the weakest part of the pamphlet, and besides not being of the highest quality, there are too many for the text. The coloured frontispiece in especial is poor, showing a single bloom detached from its stem, in the worst "exhibition" style of fifty years ago, against a solid chocolate-brown background. As the variety shown does not appear in the list of "recommended" varieties, we wonder why the author chose it at all. The list of varieties, though admittedly limited, will be found useful by beginners, and the directions for combating pests and diseases are adequate and practical.

Centenary of the Dresden "Flora."

OUR readers may be aware that in the present year Saxon horticulturists—and those of Germany generally—are celebrating at Dresden the centenary of the famous horticultural society founded by Dr. Ludwig Reichenbach in February, 1826, and known commonly as "Flora," though its extended title is "The Saxon Society for Botany and Horticulture." A "jubilee" exhibition, to which we have already referred once or twice, is to be held from April to October; festal gatherings, including a concert and a dance, took place on the 22nd and 23rd of February; and still further to mark this important anniversary, and to form a lasting souvenir, a really beautiful volume has been compiled by Herr Walter Dänhardt, the Director of the Dresden Chamber of Horticulture, under the title of *Festschrift aus Anlass des Hundertjährigen Bestehens der "Flora"* (Festival volume on the completion of the Centenary of "Flora"). This book,* which will be the most interesting souvenir of the occasion, is on fine art paper, bound appropriately in spring-green boards, with gilt-embossed lettering and design on the front.

A large part of the work, and perhaps the most interesting to foreign readers, consists of a horticultural survey of the society from its commencement, illustrated by numerous portraits and views, including, as a frontispiece, a photograph of the founder, Dr. Reichenbach, apparently taken not long before his death, which occurred in 1879. It is remarkable with what completeness this portion of the volume is compiled considering that in 1849—a "troubled year" for almost the whole of western Europe—saw the burning to the ground of a hall known as the Zwinger-Pavilion, which contained the whole of the library, herbarium and archives of the "Flora,"; of all their carefully amassed treasures, including over 6,000 herbarium specimens, scarcely a trace remained, only a few books being saved from the general ruin. Indirectly, however, good may be said to have come out of evil, for the loss of their scientific specimens turned the attention of the society to matters more nearly connected with practical gardening, and the purely botanical aspect never completely regained its former predominance.

The beginnings of horticultural instruction by the Society are interestingly described, and the horticultural history of Saxony is traced from various points of view; for instance, there are articles on "A Hundred Years of Rhododendron Culture in Saxony," "Saxon Vine-growing," "State Parks in Dresden and District," and an illustrated description of the superb State Horticultural College at Pillnitz, which occupies, with its extensive trial grounds and research institute, the former royal palace and grounds so finely situated on the banks of the Elbe.

The illustrations in the book are uniformly good, and some of the originals are of great historical value; for instance, one showing the propagation of the Camellia, thought to be the oldest on record of the subject, being taken from a treatise by Jacob Seidel, published in Dresden in 1837 (not 1887, as stated in the text, p. 30.).

Like most associations, "Flora" has had its ups and downs; during the great war it naturally suffered the temporary eclipse which was the common fate of all such societies in the belligerent countries. The historical survey ends, however, on a note of confidence, and with the cheerful aspiration, "*Glückauf zum zweiten Jahrhundert!*" ("Here's luck to the second century!"). There would seem to be little fear for the future success of the Society whilst its destinies remain in the same capable hands as at present.

FRUIT TREES AS ORNAMENTAL SUBJECTS.

LANDSCAPE gardeners and others, when undertaking the formation and construction of pleasure grounds, almost invariably neglect or forget the utility of hardy fruit trees for producing fine effects. The system of planting the same subjects in the same proportions has a tendency to make all gardens alike in detail and purpose, therefore the introduction of fruit trees for decorative purposes will be one step towards counteracting this sameness and would assuredly prove a fresh source of pleasure and profit to those who have new grounds.

I think there is no way in which the stereotyped formation of our gardens may be more effectively destroyed than by a carefully thought-out system of planting certain fruits possessing features and characters which are not found in ornamental trees.

When we consider the floral charms of the greater proportion of our fruit trees we are justified in asking why are they not more planted for the sake of their beauty alone? Take the Apple, in its countless varieties, and try to imagine what charm would be added to a garden during the spring by the disposition of these trees in a shrubbery; their beauty and splendour would be seen to advantage, and be enhanced in a setting of evergreen shrubs. It is hardly necessary to refer to the richness of their colouring fruits, which afford a changing picture from week to week. The Pear flowers earlier, and no one dare say that a fully-grown and handsome Pear tree, furnished with snowy masses of bloom, is not an acquisition to a pleasure ground, especially at a time of the year when the garden is rapidly losing its wintry aspect, when such floriferous subjects are appreciated and much needed.

From nearly every hardy fruit we may reap a like harvest of floral beauty: Almonds, Cherries, Crabs, Medlars, Plums and Quinces, all having merits as decorative trees, and all may, when properly associated with other subjects of entirely diverse character, be relied on to create charm in the flower garden. There might be mixed groups or single plants of species of Rubus, which would find a congenial home in many wild or semi-wild positions. Many of the new and recently introduced hybrids have some pleasing attraction, either in their foliage, flowers or fruits.

For the purpose of illustrating the great attention given by the French to the question of planting fruit trees for this purpose, some notes on the Pear, by M. C. Baltet, of Troyes, which appeared in the *Revue Horticole*, clearly show that the French know full well that fruit culture combines the beautiful and useful. These notes may likewise prove helpful and interesting to all who care for fruit trees for their beauty. He states: "A group of prolific, large-fruited varieties, such as Beurré de l'Assomption, Williams's bon Chrêtien, Van Marum, and others, will always be a source of delight to the lover of fruit, but the artist will look for effect from the natural appearance of the trees. If he wishes for luxuriant growth he will find it in the branches of the Pears known as The Curé, Louise Bonne d'Avranches, Conseiller de la Cour and others. The Beurré Hardy, Vanquelin and Duc de Nemours have long, upright branches, while those of Beurré d'Amanlis, Williams's bon Chrêtien and Triomphe de Jodoigne spread out more or less horizontally, or even curve downwards. The last tree is the type of hardiness and vigour. Arbre Courbé, Nouvelle Fulvie and Marie Louise would not be out of place as drooping trees: while to rival the pyramidal varieties of the Robinia, the Oak, the Birch, and the Elm, we may admit a group of Pear trees which grow naturally in this shape, such as Beurré de Nantes, Fondante de Noel, Beurré d'Angleterre and Charles Ernest. The 'curious' as they were called in the days of La Quntinye have already borrowed from the domains of pomology such subjects as the Weeping Pear, the Mount Sinai Pear, the Sage, Willow and Almond-leaved Pears, etc. The beautiful foliage of the Lucreé de Montlucon, Delpierre, and Triomphe de Jodoigne is rivalled by that of the Mikado and Daimyo varieties, which are of Japanese origin, with large, thick and somewhat cottony leaves. China furnishes us with two sorts, the thick, shining and cilitated leaves which change to amaranth red in the autumn, like certain Maples and Sumachs. The observer who takes notice of the particular characters of each variety will know that Marie Guisse, Monseigneur des Hons and Royale d'Hiver are the first to show their buds in the spring, while Martin-sec, Madame Loriol de Barny, and Herbin seem loth to shed their leafy clothing in the autumn. Bonne d'Ezée and Doyenné d'Alençon are the earliest to flower, and Alexandrine Douillard,

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* *Le Dahlia; Son Histoire, sa Culture, sa Multiplication.* Par O. F. Wuyts. Published by the author. 183, Chaussée de Bruxelles, Ledeberg-Gand, Belgium. Price Fr. 3.50.

* *Festschrift aus Anlass des Hundertjährigen Bestehens der Flora.* By Walter Dänhardt, Sidonienstrasse 14, Dresden, Germany. Price, paper, 8 Marks, bound, 10 Marks.

Sylvange and Nouvelle Fulvie protect their clusters of flowers with a sheltering rosette of leaves so soon as they open. If we wish for Pear trees with double flowers we may gratify our desire with Comte Lelieur and Beurré de Naghin, with their regular corolla, or the double-flowered Bergamotte and Calebasse Oberdieck, with their drooping petals, will satisfy us. Without being able to compete with the coloured barks of the Birch, the Golden Ash, the scarlet Dogberry, or the veined Maple, we may content ourselves for the present with the ash-coloured bark of the Besi Dubost, the ochrey Passe Colmar, the violet Beurré Gifford, the purple Doyenné Flon aîné, the dark brown Bon Chrétien de Bruxelles, the bright-barked Fondante Thirriot, the sombre Rousselet, and the yellow-green and sepia-veined and variegated varieties Beurré d'Hardenpont and Beurré d'Amanlis, Verte Longue and Saint Germain."

Owing to the abnormal times many owners of private gardens are compelled to conduct their gardens on more or less commercial lines, with a view, if possible, to making them self supporting. The planting of fruits in the pleasure grounds will serve a double purpose in assisting to beautify and to produce food, such trees being infinitely more lucrative than the ornamental trees and shrubs so extensively planted in the past. *John Coombes, N.D. Hort.*

FRUIT REGISTER.

PLUM MONARCH.

This large, purple Plum (Fig. 120), was raised by Messrs. T. S. Rivers and Son of Sawbridgeworth, who introduced it into cultivation in 1885. It is said to be a seedling from Autumn Compôte, which in turn was also raised by Messrs. Rivers from Cooper's Late. It is a dual purpose variety, for it may be used for either cooking or dessert, and is in season at the end of September and in October. The growth of the tree is very vigorous and of upright habit.

In most districts this fine Plum is very fertile and in many parts it is largely grown as a market variety. The fruit is very handsome, its dark purple-blue skin having a very pronounced "bloom." When cultivated on a wall the tree produces extra fine fruits of large size. Among other qualities this variety possesses is that the fruits do not crack, as in many Plums, during times of heavy rains, and this, apart from its fine appearance, makes it such a valuable market variety. It is a free-stone Plum and has a yellowish flesh.

Hedrick in *The Plums of New York*, states, "No Plum of recent introduction has so quickly attained popularity as the Monarch. Of the great number of Plums imported from the Old World, this is one of the few which has proved worthy of a place with the American varieties for American conditions."

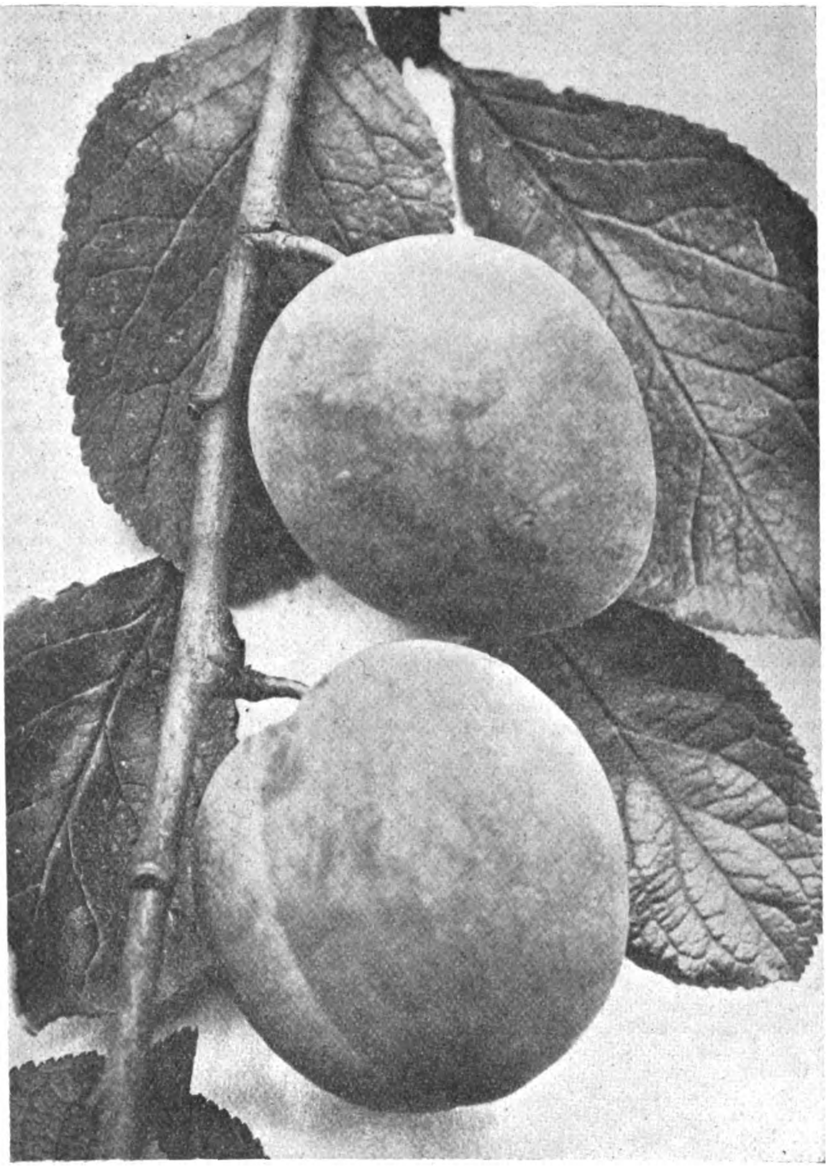

FIG. 120.—PLUM MONARCH.

APIARY NOTES.

Many people would keep bees but they are afraid. Many do keep them, and wish they did not. In each case this is a pity, for whilst some may regard the business end of a bee as its tail, it has a far better business than a sting. When Columbus played games in Genoa his mother gave him the only sweet she knew, and mothers since have little to thank the Americans for in their gift of sugar; better cakes, better toffee, and better bairns are the result of more honey and less sugar.

But bees sting! Yes, though never if they can help it. Upon that fact is based a wise bee-craft. Bees—the right bees—may be kept and never a sting entailed. Provided three things are duly considered: the bee itself, its character; the hive, its manufacture; the bee-keeper, his education. These are both the law and the gospel for all who would keep bees.

In a preliminary article of this kind a mere word on each is all that space permits. A volume might profitably be written.

The bee itself! After many years experience of many bees in many parts of the world, I can state that there are bees where a child can play at the mouth of the hive, and there are bees that would drive away an army of mailed men, and which neither smoke, carbolic nor puff-ball can subdue. To keep such bees is to be sure of a stinging. In many gardens to-day I know that bees are getting a bad name for no other reason than that the wrong bees are being kept. A hybrid bee, for instance is always a cross bee—especially if the black blood is introduced on the drone side. Re-queen all such stocks early with a docile strain.

The hive! Some hives are enough to make any bee sting. They only fit in places or fit too tightly. If they have one correct bee space anywhere that is by accident, and brace-combs and propolis, the bee's way of righting things, will prove the bee-man's Armageddon. To tear such a hive to pieces is to jar and wrench it to its foundation, and to kill and maim its innocent inhabitants. The possessor of such a hive invites and deserves the wrath of its terrified citizens. For the bee's sake give it a good home.

The bee-keeper! There is a right and a way of doing anything. A wrong way of handling bees will always mean stings; a right way seldom, if ever. The bee-keeper should be wise in reading the signs of the times. He should also know the tastes and consider the preferences of his charges. There are days when to open a hive is delightful—to lay bare its economy, to watch its organisation, to study its mysteries—but there are days when it is preposterous folly. Bee-keeping is both a science and an art, rightly conceived, and whilst the art must be acquired and cannot be taught, the science is surely communicable. To attempt to keep bees ignorantly is another sure way of being stung. It is the bee's way of answering a fool according to his folly.

The time for installing the bees as your fellow-labourers in garnering the fruits of the earth has come. Bees will not only ensure the fruits, but they will gather some of earth's riches that otherwise would be missed. To do this without pain to yourself: choose a strain of bees notable for docility—they can be obtained; choose a hive that is made to be your tool as well as a home for your bees—less easy to obtain; study to be wise—the hardest task of all, for not the ant can teach us more, and humility will be your guerdon. *John Mavie.*

FRUIT GARDEN.

PLUM TREES ON WALLS.

ALTHOUGH Plums do not take the same high dessert rank as Peaches or Pears, they probably come next in importance to Apples as a fruit crop, as they soon yield a return, and are being planted in greater numbers year by year. A little more weeding out and classifying would be highly acceptable, and the greatest favour the authorities could confer on growers generally would be to select a dozen or so of the best sorts. The desire now is to plant only varieties of high quality that bear freely, as large collections have had their day. Some counties, such as Kent, Worcestershire, Hereford and Shropshire, seem naturally well-adapted to Plum culture, as the somewhat free working soils resting on chalk or gravel certainly does favour fruit production rather than luxuriant growth. Dessert Plums may be had in good condition from the end of July to the end of October, and for an even longer period when carefully stored.

Plum trees planted against walls may be allowed a space of fifteen feet to twenty feet, as many varieties, notably Coe's Golden Drop and Jefferson, make vigorous trees that will fruit freely when allowed to extend and cover wide areas. The character of each variety must be taken into consideration at planting time, and although close planting is open to objection, far better returns are obtained during the early years by this method. Later, alternate trees must be removed to other positions if unlimited extension is to be allowed. The best Plums, such as the finer Gages, deserve the best walls and the warmest aspect that can be found for them, and only by this means can the choicest varieties be grown in the north of England. Many Plums might well replace Currants and Gooseberries which have been growing on the same walls for a large number of years.

Good culinary Plums may usually be obtained from trees in the open, but choice sorts do not, even in the best localities, always come to perfection under such conditions. Therefore, as wall space is generally limited, only the best varieties should be selected for culture on walls. The Plum is a surface-rooting tree and should never be planted deeply, two feet depth of border, well-drained, is sufficient for all its needs. A fairly stiff soil of a calcareous nature, when lightened with gritty materials, will be found suitable for all Plums. The best materials for keeping the soil sweet and open are old lime rubble, charcoal, burnt earth or broken bricks. All of these materials need not be used, but the first is indispensable for all stone fruits, as lime in some form must be provided. Animal manures, unless the soil is very poor, should not be used when planting, but a little bone-meal is always valuable. Heavy or light soils may be corrected by the addition of marl or burnt earth, road scrapings, etc. Good ordinary garden soil, lime rubble and bone meal will together constitute a medium in which Plums will grow and fruit freely, if careful attention is paid them.

Wall trees will produce remarkably fine fruits, but on some walls the old-fashioned Greengage and Purple Gage are shy in bearing. Trees growing against walls must be carefully managed and pruned as timely attention to pruning and disbudding in spring is an important detail in their successful management. The same careful attention is necessary during the early years, the object being to secure one or two additional shoots each year on the top side of existing branches to build up the tree and cover the wall so soon as possible. Natural fruit spurs will form on the main branches, and all the winter pruning necessary will be to shorten the previous year's growths to within a few buds of their bases. Later, if the fruit spurs become crowded and long, they must be shortened and disbudded if wood buds are too numerous. Any gross growths should be checked on young trees, and if summer pinching is not sufficient, root-pruning must be resorted to, as these growths are unprofitable and, if not checked, will soon disturb the even balance of the tree. So soon as the lateral shoots are ten or twelve inches long they may be pinched to half their length, and any resulting shoots stopped at the second leaf; at the winter pruning these shoots must be cut back as advised. All winter pruning should be done in the early autumn, if possible, as midwinter pruning followed by severe weather may have disastrous results.

Fan-trained trees are best for walls, and assuming that a selection has been decided upon, maiden trees should always be chosen as they are young, cheap and suitable for any form of training. Experienced growers like to select their own trees early in the autumn, but others, not so skilled, may safely entrust their orders to any reliable nurseryman.

Thinning must be resorted to if fruits of the highest quality and size are desired, as Plums produce such abundant crops in some seasons that the energy required to produce the hard shells will soon affect the vitality of the trees. The importance of thinning the crop cannot be over estimated. Dessert Plums need most careful gathering, with the stalks intact, so as not to displace the bloom in any way.

When fruits are produced in quantity it is hardly necessary to state how important it is to mulch and feed the trees, especially those planted in warm, dry positions. Wall trees do not benefit by rains to the same extent as trees in the open, therefore if the best results are to be obtained, copious waterings must be given during the summer, and the trees syringed overhead on fine evenings until the fruits approach maturity.

When grown under healthy conditions, the Plum is not subject to many diseases; green fly and caterpillars are its worst enemies, and both may be kept in check by timely syringings with Quassia extract.

Plums are not often grown as cordons, but they would be a much greater success in this form if no attempt were made to keep the fruit spurs too close to the stems.

They should be allowed to grow freely and more or less roughly, and if the roots are kept under control good crops of Plums of high quality may be gathered in all favourable seasons if the trees are kept free from insect pests.

As all Plum trees on walls flower early, the bloom and fruit should be protected in the same careful manner as in the case of Peaches, and fewer failures would then be recorded. We have few good dessert Plums in July; Early Green Gage does not appear to be grown much now, although it is very good in warm seasons. In August we are well-provided with many excellent varieties, such as Early Transparent Gage, which is a great success on east or west walls; Oullin's Golden Gage, which succeeds in any aspect, and is the best cropping Plum I have ever seen on an east or north wall. Then we have Dennison's Superb, one of the best in all forms and the Old Green Gage, which is best on a west wall and crops freely if the roots are kept well under control.

Good dessert Plums are numerous in September, as Green Gages will not be over; Jefferson's, is perhaps the most reliable cropper of all Plums in any position and any part of the country; Kirke's is the richest flavoured of all dark Plums, and a fairly regular cropper if kept carefully root pruned; Coe's Golden Drop is always a success on east or west walls, is of delicious flavour, and will cover a long season if the fruits are hung up in a dry, airy room, or wrapped in soft paper and kept dry.

Other good varieties for east or west walls, according to locality, are Count Althann's Gage, Late Transparent Gage, and Late Orange. Of the newer varieties Laxton's Utility is a good grower, an enormous cropper, and of very rich flavour; it is splendid on an east or west wall. I cannot give my personal experience of the cropping qualities of Laxton's Gage and Laxton's Delicious, but both these varieties were highly praised when they came before the Fruit Committee of the Royal Horticultural Society. *F. Jordan.*

VEGETABLE GARDEN.

THE CULTIVATION OF CARROTS.

CARROTS should be grown in rich soil that has not been dressed recently with organic manure, for fresh animal dung will result in a greater degree of forking in Carrots than in any other tap-rooted vegetable. Soil which was well-cultivated a year ago will suit this crop without the incorporation of any additional organic matter.

A deep rooting-medium of good texture is conducive to the formation of clean, shapely roots. I find it an advantage to dig to the depth of two spits for the intermediate and long-rooted types of Carrot. It is not necessary to dig so deeply for shorthorn varieties, which are frequently grown as a catch crop between the rows of other vegetables. I sow intermediate and long Carrots in the first week in April. If the soil does not work well at that time I wait until it does. The seeds are sown thinly in drills one-and-a-half inch deep, one foot three inches apart for the former section, and one foot six inches for the latter.

The necessity for thin sowing is particularly urgent in the case of Carrots, because it reduces liability to attack by the Carrot fly. Loose soil conditions in the immediate neighbourhood of the roots favour the activities of the egg-laying fly. Thinning should be undertaken ere there is the least sign of overcrowding, allowing the intermediate Carrots twelve inches from plant to plant and the long varieties fifteen inches, I have tried several systems of feeding Carrots under well-controlled conditions. One thing emerged from the trials above all others, viz., that no good transpires from feeding the crop before it is half-grown. After that stage a potash fertilizer will increase bulk and improve quality. Sulphate of potash at the rate of one-third of an ounce per plant was applied weekly from the half-grown stage until signs of maturity were apparent. The application of diluted liquid manure over a similar period and at similar intervals yielded good results also, but not quite so good as the potash dressing. Leaf-growth was stimulated without a corresponding increase at the roots.

When the crop is mature it should be lifted and stored in sand in dry, frost-proof conditions. I believe that James' Scarlet Intermediate and Long Red Surrey are the best two long Carrots in cultivation. The members of the Shorthorn section may be sown at any time from April to August in drills six inches asunder, which is the distance to which the plants should be thinned.

It is customary to use stump-rooted Carrots as they are lifted from the ground, and the variety New Model is one of the best. Artificial feeding is unnecessary.

Concerning the Carrot fly, I have found that the activities of the pest may be prevented by the use of a carbolic sheep dip. One ounce of the substance should be dissolved in a gallon of water with which specific the Carrots should be sprayed every fortnight, after the tops are two inches high, until the beginning of August. *Geo. H. Copley, N.D.H.*

CLIMBING BEANS.

THE value of Beans for household supplies can hardly be over-rated, for their rapid growth and free-bearing qualities make them ideal subjects for this purpose. From the dietetic standpoint they rank high amongst green vegetables because of the comparatively large quantity of nitrogenous matter they contain, in addition to a carbonaceous content which enables them to serve the double purpose of making good the waste of tissue and supplying energy, while their mineral salts play an important part in body chemistry.

While Dwarf Kidney Beans serve their purpose in extending the season of supplies and are particularly useful for forcing, they cannot compare in value with the climbing varieties for weight of crop and general utility, and the majority of vegetable consumers prefer Scarlet Runners to so-called French Beans.

Foremost amongst the climbing types is the Scarlet Runner, the cultivation of which is probably more extended than that of any other vegetable. It is the chief green summer vegetable in tens of thousands of cottage gardens and allotments, while even in the tiny cubicle gardens of our great cities it may be found in a flourishing state giving long and continuous supplies of its succulent legumes, besides beautifying the cubicle, and in many cases effectively hiding ugly corners.

A native of the warmer regions of South America it is impatient of low temperatures and intolerant of cutting winds, hence a sheltered site offers great advantages and it is often for this reason that it does so well in the comparative warmth of town gardens. Although a perennial, the only practicable means of cultivating it in this country is as an annual, and the idea that the roots, if taken up, preserved through the winter in sand and planted out at the end of May, will produce an earlier crop than plants raised from seeds, does not usually materialise in practice.

To obtain very early crops seeds may be sown under glass, and the plants grown on into forty-eight sized pots, but, except in the early stage of germination, they should not be subjected to great heat, while thorough hardening should be effected before planting out or a serious check will ensue which will nullify any advantage gained at this stage. A comparatively early crop from outside-sown seed may be obtained by sowing a few rows on a warm south border, and keeping the points regularly pinched so as to encourage the early development of pods. Such methods of cultivation are not natural, however, and although it may be expedient for earliness the practice should only be followed for this purpose.

For the general crop it is seldom that anything is gained by sowing in the open ground earlier than the beginning of May. The plants from this sowing will be well advanced by the third week of the month and should be carefully watched and protected, if necessary. Successional sowings may be made in June and a small sowing early in July for late cropping. Arrangements should be made to protect this sowing as it not infrequently happens that an early autumn frost destroys these tender plants, but subsequent weather is ideal for their growth. A very little protection often prevents this loss, and with a row of young and vigorous plants, supplies may be well maintained until quite late in the season.

It is preferable to sow the seeds in a prepared trench, in a double row, with about nine inches space between them, dibbling the seeds alternately in the rows at a foot apart. So soon as the points begin to grow, stout stakes about seven or eight feet long should be provided, firmly inserting a stake to each plant from the outsides of the row and slanting the stake to the centre so as to meet near the top, where the whole structure may be strengthened by securely fastening each stake to a horizontal rod. Where suitable stakes are difficult to obtain, a similar and cheap climbing surface may be created by means of binder twine, but this should be substantially fixed or it will collapse under the enormous weight of a good crop. Galvanised wire of not less than sixteen gauge should be used for the stays. Stout poles should be erected at each end of the row with an occasional intermediate one in long rows. A cross-piece about a foot long should be fixed at the bottom of each pole to form projecting ends to which a strand of wire should be fastened on each side; a further strand should be fixed to the tops of the poles, and the strings may be fastened from the sides alternately to the top.

The cropping capacity of Runner Beans, both in relation to seeds used and space occupied, is enormous, and the cultivation must be of the best to achieve good results. When this high yield is considered, together with the fact that the bearing period covers the hottest part of the year when transpiration is at its maximim, it is abundantly clear that thorough preparation of the trenches is a controlling factor in successful cropping. Liberal supplies of organic manure should be incorporated with the soil in this preparation, not only to increase its richness, but also to improve its hygroscopic power. Adequate mulching should be practiced to prevent loss of moisture by evaporation; systematic gathering of the pods should be carried out to avoid loss of energy through seed formation; and, if watering is considered necessary, rain water or that exposed to atmospheric warmth should be used.

The varieties in cultivation to-day such as Best of All, Prizewinner, Sutton's A. 1., Scarlet Emperor and Red Giant—which often attain a length of seventeen to eighteen inches—remain of superb table quality and are almost unbelieveably superior to Speckled Beauty, Scarlet, York and Lancaster, and Champion Scarlet, the varieties prevailing fifty years ago.

Few people realise the value of Climbing French Beans, the varieties of which, as we know them to-day, are of comparatively recent introduction, and were not even listed fifty years ago. If their continuous bearing qualities were better known they would be far more widely grown, for they yield a profusion of long, succulent pods possessing the characteristics of the dwarf class. Not needing such tall stakes as the Runner class, they may sometimes be more conveniently grown by the small grower whose space is limited. Earliest of All is ready for use early in July, and if gathered small and cooked whole the pods make a very delicate dish. The seeds are also specially valuable as dried Haricots. Tender and True is a very prolific variety and excellent for culture under glass as well as in the open air. Where a warm house is available, with sufficient head room for the growth of this Bean, there will be no difficulty in maintaining ample supplies during the early months of the year. Princess of Wales is also an excellent variety, yielding an abundance of tender and delicious pods, and it is suitable for indoor or outdoor culture.

Still another section of Climbing Beans includes the Waxpod or so-called Butter Beans, remarkable for their bountiful production of stringless pods, which are deliciously palatable when cooked whole. The Tall White Algerian Butter Bean is a vigorous kind remarkable for the yellowish tint of its leaves. It bears an abundance of short, edible pods, and, being white-seeded, it has the additional advantage of making an attractive Haricot when dried. Mont d'Or Waxpod is another early and productive variety with fleshy and perfectly stringless pods which are very valuable early in their season. *A. P. C.*

GREENHOUSE TANKS.

For the successful cultivation of plants under glass it is necessary to have a good supply of soft or rain water heated to the temperature of the house in which the plants are growing. Modern houses are often supplied with one or two small tanks only.

During rainy weather, when the plants require but little moisture, there is a great loss of water through these small tanks overflowing, yet during continued dry weather, when the maximum amount of water is needed, these are quickly emptied, necessitating their frequent refilling from some central source, which too often happens to be spring or service water. Small tanks may be quite suitable, provided the water can be drawn from a fresh water stream or lake. Even this means considerable expenditure, as pipes will be needed to convey the water to the place required. The temperature of the water will also be, especially during the winter, considerably below that of the greenhouse. A tank of three hundred gallons capacity is not too large for a house of average size, say twenty-five feet by fifteen feet. To economise space, it may be constructed partly or wholly below the ground level, but should, if possible, be quite close to the water pipes. Probably the cheapest and certainly the most durable material with which to build a tank is concrete. If it is constructed below the ground level, it is advisable to cover it with a trellis, a portion of which should be arranged so that it may be easily removed for dipping purposes. *Charles Hodgson.*

HOME CORRESPONDENCE.

The Editors do not hold themselves responsible for opinions expressed by correspondents.

Anemone nemorosa.—In his notes on page 151, Mr. A. T. Johnson mentions A. n. Robinsoniana var. cornubiensis and complains of its lack of colour, if it is the true plant. I feel sure it is not. I know it as A. n. cornubiensis, and find it an early variety of fine, rich colour, with a reddish-purple tint on the outside of the petals. The flower is a very much deeper shade than that of A. n. Robinsoniana, and may be distinguished by the reddish-purple stems. It opens almost so soon as the early variety Royal Blue, and I place it as second to the variety Alleni, which I consider the best. *G. H. Dalrymple.*

Grafting Fruit Trees.—In your issue of March 6, Mr. W. Auton (page 168) describes the ordinary way in which the grafting of fruit trees is carried out, *i.e.*, by means of a binding of raffia and a covering of material, such as clay mixed with hair and dung, or by wax, to keep out air until the union between stock and scion is effected. I followed this practice for years, but now use a method of my own, which may interest your readers. I cut half-inch pure rubber tape into lengths of, say, four inches; with the warmth of the hand or pocket these strips become softened and are easily extended to eight inches, and become about three-eighths-of-an-inch wide, the thickness being considerably reduced. The stock and scion are united in the usual way and the rubber tape binds them together. With a tube of rubber solution at hand I rub a little of the contents over the binding tape and the process is complete. The advantages I claim are (1) much saving of time, as the binding and covering are done by one process; (2) as the stock often grows rapidly until July, the rubber binding expands, whereas the raffia cuts into the stock and scion and the effect cannot be seen under the wax or other covering; (3) by July or August the sun and weather have perished the rubber and there is no need to trouble about removing the covering; (4) the results obtained by both processes are equally good; (5) the cost of the rubber tape (such as used by electricians) is repaid many times over by the saving of time. *Edmund Charrington, Ice Wood Cottage, Limpsfield, Surrey.*

Frost and Insects.—Mr. Nicholson states (p. 122) that "nature's children . . . . . exercise common sense . . . to protect themselves during the winter . . . . the harder the weather the better for them . . . indirectly, because hard weather decimates their chief enemies, birds." These statements directly contradict each other. Birds are also Nature's children, and if birds are decimated by hard weather, why not insects? Are insects so much better equipped than birds to withstand the rigours of winter? No! Hard frosts mean death to millions in the insect world. General opinion, which may be taken to mean hundreds of years of experience by our forefathers and handed down to us, and the experience of thousands of ordinary working gardeners of to-day must have some basis of truth in the belief that hard frosts destroy vermin. Nature always maintains a balance, and so surely as frost destroys the enemies of insects, so surely does frost also destroy insects. All vermin do not die during hard weather, nor, for that matter, do all birds. Nature's law for all is the survival of the fittest, and I think even Mr. Nicholson will agree with me in the facetious statement that some insects are not fit to live. *H. J. Phillip.*

Wintering Lobelia cardinalis.—Regarding the treatment recommended by a correspondent (p. 96) for wintering Lobelia cardinalis, I agree that heated frames are the best for the northern counties. Mr. C. Hodgson (page 179) cites the case of one plant which has withstood twenty-five degrees of frost. That is nothing to wonder about as Lobelia cardinalis is very hardy, but plants left outside to winter seldom make satisfactory plants afterwards. Let Mr. Hodgson test a hundred plants wintered outside, one hundred boxed and stored in cold frames and the same number in slightly heated frames, and judge the results in early September! As regards the "rest" which he thinks they require, I find plants can be rested better in heated frames than in cold ones, for the soil in the boxes may be kept drier, thereby inducing a rest. To obtain plants three feet to four feet high when in flower, heated pits are essential in this part of England. I find the best way to deal with Lobelia cardinalis is to winter it in heated frames, divide the old roots at the end of March or the first week in April, select the strongest portions, and plant them in a frame, about six inches apart, eventually planting them out at the end of May. I have tried cold-frame winter treatment but the resultant plants are never so good as from crowns wintered in slight heat. *F. C. King, Levens Gardens, Milnthorpe.*

Olearia semidentata.—*A. T. H.* (page 188) invites growers of this shrub to state their experience of its hardiness. During the past winter fourteen degrees of frost were registered on three nights, not consecutively, but with heavy rain and sleet intervening. We have here many plants of Olearia semidentata up to five feet in height, growing in various positions and exposures both in the woods and flower garden, none of which has suffered any injury from the cold. *Herbert Maxwell, Monreith.*

Beds for Ericaceous Plants.—It is with some trepidation that I venture to disagree with certain of the advice given on p. 186 by Mr. Puddle on the making up of peat beds for Ericaceous plants when the grower is cursed with calcareous soil. It is possible that Mr. Puddle has so long enjoyed a freedom from lime that he has forgotten how insidious is this substance—a boon to many plants but a poison to some. It is suggested in the article referred to that a bed of peat, leaf-mould and sand be made on the surface of the soil—bitter experience has taught me long ago that a bed thus constructed will become lime-infested in a couple of years if the sub-soil contains lime, and I am certain that this takes place through the agency of worms. To be successful in keeping out lime from a peat bed it is necessary to use concrete. The shape of the bed is pegged out and any soil or rubble is thrown in so as to make a roughly conical mound sloping down to the pegs. This mound is well rammed and then covered with a thin layer of concrete; one to one-and-a-half inch is amply thick enough. The rocks which are to form the edge of the bed are then cemented on to the concrete, and the bed is then ready for filling with the mixture of peat, leaf-mould and sand, from one to one-and-a-half foot deep. The soil in a bed thus constructed does not turn sour, and there is plenty of room for rain water to drain away between the surrounding stones. The additional expense of such a bed is very small and will ensure success, an important point when the price of soil and cartage from a distance have to be considered. *Maurice Amsler.*

Gardening—an old Profession.—I read the note on page 179 with great interest, for, as a gardener who has been employed on three estates which have been sold (two since the war), I have had some experience of these matters. I served an apprenticeship, paying a premium, afterwards gaining further experience in good gardens and nurseries as improver, journeyman, and foreman. Employers whom I have served as head gardener have expressed their appreciation of my services and have presented me with excellent testimonials as to my abilities and character. At present I am hoping that the optimistic views expressed by Mr. Bruce D. Hewitt may be realised. *C. R.*

SOCIETIES.

ROYAL HORTICULTURAL.

MARCH 23 and 24.—Another fine exhibition of plants and flowers greeted the Fellows and others who visited the Royal Horticultural Hall, Westminster, on the above dates. This display was not quite so large as the previous one, consequently there was a little more space for movement between the tables. Daffodils were the leading feature of the show, and as most of the groups were arranged round the hall, next to the wall, they provided a rich setting for the Carnations, alpine plants, Clematis, Cyclamens, Freesias and other interesting subjects. Orchids were not so numerous as on March 9. A particularly fine group of splendidly grown Clivias from Westonbirt attracted a great deal of attention and won unstinted admiration. Novelties were numerous, the Narcissus Committee granting no fewer than eleven Awards of Merit and two First Class Certificates. Rhododendron lacteum was the outstanding new plant, but there were many of Capt. Kingdon Ward's discoveries, chiefly Primulas, shown by Lady ABERCONWAY and others, although many of them were not yet at their best.

Orchid Committee.

Present: Sir George Holford (in the chair), Mr. F. J. Hanbury, Mr. R. Brooman White, Mr. H. F. Pitt, Mr. S. W. Flory, Mr. Fred. K. Sander, Mr. H. G. Alexander, Mr. J. E. Shill, Mr. A. McBean, Mr. J. C. Cowan, Mr. H. H. Smith, Mr. T. Armstrong, Mr. R. G. Thwaites, Mr. J. Wilson Potter, Mr. Stuart H. Low, Mr. Chas. H. Curtis and Mr. Gurney Wilson (Hon. Sec.).

FIRST-CLASS CERTIFICATES.

Cymbidium Petrel, Westonbirt var.—A strikingly beautiful variety with rich rose-coloured sepals and petals, marked with suffused lines of a deeper shade. The lip is mostly of an intense crimson with white markings in the throat, two yellow ridges, and a white margin that sets off the rich colouring. Shown by SIR GEORGE HOLFORD (gr. Mr. H. G. Alexander), Westonbirt, Tetbury.

Cattleya Minnehaha, The Dell Park var.—An exquisitely beautiful Cattleya with wonderfully broad petals and a finely posed white lip. The whole flower is pure white except for the throat of the lip, which is light orange-yellow. Shown by BARON BRUNO SCHRÖDER (gr. Mr. J. E. Shill), The Dell Park, Egham.

AWARDS OF MERIT.

Cattleya Titranae, Manor House var. (*C. Trianae Mooreana* × *C. Tityus*).—A flower of beautiful form and good size; the sepals and petals are bright mauve, and the handsome lip is mauve at the base, royal purple over the whole of the apex, and has a pale yellow throat. Shown by G. W. BIRD, Esq., Manor House, West Wickham.

Laelio-Cattleya Rajah (*L.-C. Smilax* × *L.-C. Cupid*).—A gorgeous hybrid with rich orange sepals and petals and a frilled orange lip which has a ruby-crimson front. Shown by COL. STEPHENSON CLARK, Borde Hill, Cuckfield.

Potinara Juliettae, Brockhurst var.—A very handsome variety of a now well-known trigeneric hybrid. The sepals and petals are salmon-coloured, with ruby tinting, and the fine lip is rich ruby-crimson with orange lines in the throat. Shown by FRED J. HANBURY, Esq., Brockhurst, East Grinstead.

GROUPS,

Most of the Orchids were accommodated in what is known as the Orchid Annexe. Mr. HARRY DIXON made a pleasing display with numerous hybrid Odontoglossums, Cypripediums, Cymbidiums, Dendrobium Radiant and Cattleya Empress Frederick.

Mr. H. J. PITT (gr. Mr. Thurgood), Rosslyn, Stamford Hill, contributed a very pleasing group wherein Brasso-Cattleya Princess Patricia (C. Enid × B.-C. Cliftonii) was the central figure. Good forms of Odontoglossum crispum, hybrid Odontoglossums, Odontiodes and Cymbidiums, lent grace and colour to the exhibit, while subjects of special interest were Epidendrum Endresii, E. Endresii-Wallisii, Polystachya lutescens with five spikes of yellow-green flowers, Cypripedium Boltonii, Cymbidium Devonianum, Odontoglossum pulchellum, and the quaint Cirrhopetalum gracillimum—all comparatively rare subjects that Mr. Pitt contrives to grow so well.

Cymbidiums were the feature of Messrs. SANDERS' exhibit and notable kinds of these useful Orchids were C. Pauwelsii, C. Roger Sander, C. Erica Sander, and C. Swallow var. Exquisite—a lovely rose-coloured form. Brasso-Laelio-Cattleya Pink Pearl var. Glory was a prominent plant and the flower had an enormous lip; Cirrhopelatum picturatum, and Megaclinium Clarkei, were two interesting species in this group.

Messrs. BLACK AND FLORY showed the beautiful Cattleya G. P. Walker in several varieties, and Brasso-Cattleya Albion. Messrs. CHARLESWORTH AND CO. made a small contribution, including the showy Miltonia Princess Mary, Odontioda Beryl with fifteen flowers and the bold Brasso-Cattleya Oberon.

Messrs. COWAN AND CO. exhibited Cymbidiums in good form, C. Petrel and C. Plover being especially attractive. There were also fine plants of Cattleya Tityus, Odontioda Henryi, Miltonia Bleuana rosea Leeana, and the white Cattleya Freda Sander.

Messrs. STUART LOW AND CO. exhibited a very interesting collection which included Sophro-Laelia Leda and the pretty little S.-L. Psyche, Oncidium cucullatum, Odontoglossum bictoniense, Schomburgkia undulata and Bulbophyllum miniatum with fringed, mobile lip. Showier subjects were Odontoglossum Lilian, O. Portia, Odontioda Colinge, Brasso-Cattleya Ruby, Dendrobium chrysotoxum and the handsome D. suavissimum.

Floral Committee.

Present: Section A.—Mr. H. B. May (in the chair), Mr. J. F. McLeod, Mr. Arthur Turner, Mrs. E. M. Wightman, Mr. H. J. Jones, Mr. J. M. Bridgeford, Mr. Wm. Howe, Mr. Donald Allan, Mr. A. Vasey, Mr. J. T. West, Mr. James B. Riding, Mr. F. Streeter, Mr. D. B. Crane, Mrs. Helen Lindsay Smith, Mr. Chas. E. Pearson, Mr. W. B. Gingell, Mr. E. R. Janes, Mr. D. Ingamells and Mr. Mark Fenwick.

Section B.—Mr. Charles T. Musgrave (in the chair), Mr. W. J. Bean, Mr. R. C. Notcutt, Mr. Geo. Harrow, Mr. F. G. Preston, Mr. Reginald Cory, Hon. H. McLaren, Mr. L. R. Russell, Mr. R. Wallace, Mr. G. Yeld, Mr. T. Hay, Mr. E. H. Wilding and Mr. James Hudson.

FIRST-CLASS CERTIFICATE.

Rhododendron lacteum.—This handsome, large-flowered species was first discovered by Delavay in the Tali Range at an altitude of 12,000 feet, and introduced by Forrest in 1908. The compact well-formed truss is made up of shapely lemon coloured flowers; in an occasional truss there is a small dull carmine blotch in the base. The rich green foliage is ample, and the species makes a fine bush some 20 feet high. Shown by A. M. WILLIAMS, Esq., Werrington Park, Launceston.

AWARDS OF MERIT.

Acacia Riceana (?).—Under this name a graceful Mimosa, obviously not Acacia Riceana, received a provisional award. Several drooping branches were shown, which apparently were cut from the open. They bore small, narrow leaves and abundant, pale, orange-coloured flowers. Shown by Mrs. CHARLES WILLIAMS, Greenways, Churston Ferars, Devon.

Anemone Creagh Castle strain.—The vases of flowers indicated a very desirable strain of St. Brigid Anemones. The flowers were unusually large and had very bright colours. Shown by Mrs. BUCKNALL, Creagh Castle, Doneraile, Co. Cork.

Clivia (*Imantophyllum*) *Westonbirt Brilliance.*—This magnificent hybrid bore a very large umbel of vivid flowers. The rich rosy-orange colour extended lower into the tube than is the case with C. miniata and the white throat is tinged with yellow at the base. Shown by Sir George Holford, K.C.V.O. (gr. Mr. J. Mitchell), Westonbirt, Gloucestershire.

Primula Cawdoriana.—This elegant little species is named in compliment to the Earl of Cawdor, who accompanied Capt. F. Kingdon Ward on his eighth Asiatic expedition. The collectors number is K.W. 5741. It is a graceful little plant, producing short heads of blue flowers on long, slender stems rising from tufts of pale green, ovate-lanceolate, coarsely serrated leaves. The semi-pendulous little flowers have short tubes and are of a paler shade of colour inside. Shown by Lieut.-Col. Messel, Nymans, Haywards Heath.

Primula malacoides var. Dwarf Eclipse.—This is a splendid little pot plant. The sturdy, compact specimen had an exceptional number of flower spikes, while the individual flowers were large and substantial, of bright mauve colour with a small orange zone. Shown by Messrs. Sutton and Sons.

Prunus salicina.—The "Japanese Plum" has several other botanical names; the best-known are P. triflora and P. Botan. There is an illustration of flowering and fruiting branches in the *Revue Horticole*, 1915, p. 160, which gives a good impression of the floriferous habit and showy fruits. It is presumed to be a native of China, and was introduced to California in 1870, where it has given rise to a number of varieties which are valued there for their hardiness, early fruiting, and long-keeping qualities. It does not seem to be of equal value in this country as it apparently requires hotter summers than we usually experience. Its chief value lies in its plentiful, rounded white flowers which are freely produced. Shown by Mr. R. C. Notcutt.

GROUPS.

A magnificent collection of hybrid Clivias (Imantophyllum) was exhibited by Sir George Holford, K.C.V.O. (gr. Mr. J. Mitchell), Westonbirt, Gloucestershire. Not only were the very many plants examples of high cultural skill, but they illustrated the immense improvements on C. miniata that have been made at Westonbirt. The umbels of flowers were of great size and the individual blooms are also of greatly increased size and of improved form. Of the many varieties the brightest were Bonfire, Westonbirt Brilliance, Lantern and Westonbirt Perfecta in which the perianths bore vivid rosy-orange colouring much deeper into the throat than in the type. The varieties Field Marshal. Lady Holford and Twilight are of paler colour but of equal value to the others, while Fairy is of fascinating pale orange shading.

Messrs. Puttridge, Ltd., again staged an excellent collection of their Caledonian strain of greenhouse Cyclamens. The Frilled variety, Ruby, and White Wonder were splendid examples. A dozen or so well-grown plants of greenhouse winter-flowering Begonias were shown by Sir Brodie Henderson (gr. Mr. Wm. Eggleton), Epping House, Hertford.

Carnations of the accustomed quality and quantity were displayed by Mr. C. Engelmann, Messrs. Allwood Bros., and Messrs. Stuart Low and Co., while Messrs. Keith Luxford and Co. also had a collection. In addition to their Carnations Messrs. Stuart Low and Co. showed large-flowered Hippeastrums and Acacias in pots.

Mr. Elisha Hicks included such good varieties as Mrs. H. Stevens, Climbing Lady Hillingdon, Chas. E. Shea, Clovelly, and Padre in a bright collection of Roses. The chief varieties shown by Mr. George Prince were Betty Uprichard, Richmond, Padre and Paul's Scarlet Climber.

A good selection of large-flowered Cinerarias was staged by Messrs. R. and G. Cuthbert with floriferous little bushes of Pinus spectabilis type. Sweet Violets, both double and single varieties, were exhibited by both Mr. J. J. Kettle and Mr. Baldwin Pinney.

A large collection of Multiflora Hyacinths was arranged by Messrs. Sutton and Sons with exceptional skill and taste. These were very floriferous examples in large bowls and, set out in distinct colours, were of considerable decorative value. Mr. James Douglas brought a collection of his well-known show Auriculas. In a collection of well-flowered Polyanthuses Messrs. Blackmore and Langdon included a large batch of a good blue Primrose.

Although it did not find favour with the Floral Committee the branches of Callistemon citrinus var. splendens, shown by the Director, Royal Gardens, Kew, attracted many visitors who admired the splendid "Bottle Brush Flowers." Mr. G. H. Dalrymple again set up an attractive collection of his coloured Freesias. The chief varieties were Buttercup, Jubilee, Golden King, Creamcheese and Apogee. Messrs. Dobbie and Co. staged a good batch of Freesia Wistaria.

A striking exhibit of Alpines in pots and pans was made by Mark Fenwick, Esq. (gr. Mr. F. Justin), Stour-in-the-Wold. Daphnes, which were well represented, included Daphne retusa, D. Blagayana, D. rupestris grandiflora, D. tangutica and D. Cneorum album. There were also many very desirable Primulas, including P. marginata, P. viscosa The General, P. pubescens and P. rosea grandiflora, as well as some showy garden varieties. Gentiana verna, G. acaulis, Haberlea Ferdinandi Coburgi, Saxifraga Griesbachii and S. thessalica were particularly well represented, and the exhibit also included Kurume Azaleas and Daffodils.

The Lady Aberconway (gr. Mr. F. C. Puddle), Bodnant, N. Wales, showed some interesting new and rare Primulas which included P. Baileyana, P. redolens, P. sino-Listeri, P. muscarioides (series) and P. chionantha variety. There were also several good pot plants of the blue-flowered Rhododendron rupicola and a fastuosum hybrid.

Interesting rock garden exhibits were made by Messrs. Skelton and Kirby; Messrs. Waterer, Sons and Crisp, who planted dwarf Rhododendrons, Primulas and Saxifrages; Messrs. R. Tucker and Sons, who had good groups of Armeria caespitosa, Morisia hypogaea, and a pretty little plant of a hybrid of Anemone graeca, having a rose-coloured flower; the Misses Hopkins; Mr. F. G. Wood; Messrs. Maxwell and Beale, who planted Ericas, Auriculas, Myosotis and Gentians; Mr. Gavin Jones; Messrs. Wm. Cutbush and Son, who set out good breadths of Ericas, Kurume Azaleas, Primulas and Irises; Messrs. Hodgsons, Ltd.; and Mr. Clarence Elliott, who had delightful little specimens of the upright Irish Juniper and various Primulas.

An extensive exhibit of Alpines in pots and pans was displayed by C. G. Kirch, Esq. (gr. Mr. J. Wall), Edenhall, Berkhamsted. Amongst the very many examples we especially noted Saxifraga cochlearis varieties, Androsace helvetica, A. pyrenaica, Saxifraga florulenta, Lewisia Columbiana, Fritillaria Meleagris, and a number of Sedums, Sempervivums, and Primulas.

Dwarf Daisies were prominent in the exhibit of Messrs. B. Ladhams, Ltd., whose chief varieties were Dresden China, Joyce, Alice, and Balls of Fire. The John Innes Horticultural Institute showed several boxes of Primula acaulis-Juliae and P. elatior-Juliae derivatives of botanical interest. Various garden Primulas and pots of Viburnum Carlesii were shown by Messrs. Bakers, Ltd. Messrs. M. Prichard and Sons staged small plants of Saxifraga Twynham Beauty, Gentiana verna, Daphne Cneorum, and Anemone fulgens.

An interesting collection of uncommon Rhododendrons exhibited by Messrs. Robert Veitch and Son included flowering branches of R. Lesterianum, R. Veitchii, R. Dr. Stocker, and R. hippophaeoides. They also showed sprays of Magnolia Veitchii, Acacia Exeter Hybrid, and Camellias, with floriferous plants of Kurume Azaleas. Rhododendron niveum, R. Elsae, R. barbatum varieties, and R. ciliicalyx were displayed by Mr. G. Reuthe, with boxes of Alpines. Messrs. L. R. Russell, Ltd., arranged well-flowered plants of hybrid Clematis in variety, Azalea indica varieties, and several climbers.

Narcissus and Tulip Committee.

Present:—Mr. Geo. Monro (in the Chair), Mr. G. W. Leak. Mr. P. R. Barr, Mr. W. Poupart, Mr. Rollo Meyer, Mr. J. Jones, Mr. G. Churcher, Mr. J. D. Pearson, Mr. Charles H. Curtis, Mr. W. B. Cranfield, Mr. F. H. Chapman, Mr. Herbert Smith, Miss Wilmott, Mr. C. W. Needham, Mr. F. Barchard and Mr. A. Simmonds (Secretary).

FIRST-CLASS CERTIFICATES.

Narcissus Glorious.—A useful, large-flowered Poetaz variety, white with orange cup. This gained an Award of Merit in 1923. Shown by Mr. J. L. Richardson, Waterford.

Narcissus Beersheba.—A very fine white Trumpet variety of large size and wonderful purity (1b). Previously received an Award of Merit. Shown by Mr. J. L. Richardson.

AWARDS OF MERIT.

Narcissus St. Bernard.—A giant Incomparabilis variety with deeply frilled margin to the trumpet. The colour is deep yellow with orange shading in the mouth of the trumpet. Award for market purposes. Shown by Messrs. Herbert Chapman, Ltd.

Narcissus Alroi.—A fine show flower belonging to the giant Incomparabilis group. The flowers are of good form and soft yellow colouring. Shown by Mr. J. L. Richardson.

Narcissus Loyalist—A show variety of the Trumpet group and one of the best of the novelties. The perianth is yellow and the trumpet golden yellow. A flower of smooth, refined form. Shown by Mr. J. L. Richardson.

Narcissus Mitylene.—In this beautiful Leedsii variety the wide perianth segments are white, and the straight trumpet is pale primrose-yellow. Raised by the Brodie of Brodie. Shown by Mr. J. L. Richardson.

Narcissus Fairy Circle.—This dainty little Leedsii variety has modest flowers of pure white, with a flat, disc-like cup that is greyish-white, with yellow colour towards the plaited circumference; a charming novelty raised by the Brodie of Brodie. Shown by Mr. J. L. Richardson.

Narcissus Granada.—This golden Incomparabilis variety gained an award for market and cutting purposes. It has bold, long-stemmed flowers of fair form; the trumpet is golden-yellow and the perianth segments somewhat lighter. Shown by Mr. W. B. Cranfield, Enfield.

Narcissus Everest.—One of the very finest of the series of white Trumpet Daffodils. The flowers are of fine form and substance. We illustrated this variety in 1922 and also in our issue of April 26, 1924. Shown by the Donard Nursery Co., Co. Down.

Narcissus Prospector.—A bold Trumpet variety of large size, with flowers of deep golden-yellow colouring. The award was made as a market variety. Shown by the Donard Nursery Co.

Narcissus Duke of Normandy.—A very large golden-yellow Trumpet variety with wide trumpet and broad perianth segments. It gained the award for market use, but it is somewhat on the coarse side and had suffered a little during its journey from the Channel Islands. Shown by Mr. C. B. Blamfield, La Fosse, St. Martins, Guernsey.

Narcissus Orange Brilliant.—This is a distinct addition to the double sorts, and although it is not so double as the Phoenix varieties, it is large, showy and of striking appearance. The perianth segments are soft apricot-yellow, and some of the central segments are of similar hue but associated with numerous others of vivid orange colour. Shown by Messrs. R. H. Bath.

Narcissus Advance Guard.—A large and bold Trumpet variety of golden-yellow colour and evidently a descendant from King Alfred. It has a finely recurved rim to the broad trumpet and gained an award for market purposes. Shown by Messrs. R. H. Bath.

GROUPS.

Messrs. Barr and Sons included several excellent Incomparabilis and large Trumpet seedlings in their admirable collection of Narcissi. The named varieties included Sea Nymph, pale apricot corona and paper white perianth; Bonaparte, a large-flowered Incomparabilis of rich golden colour; Golden Chief, large trumpet: Duke of Bedford, Lady Hilda and General Sarrail, bicolor Trumpets, were of great merit. They also included some Barrii and Leedsii varieties of considerable charm.

Some vases of large blooms of King Alfred Daffodil occupied a prominent place in the exhibit of Messrs. J. R. **Pearson and Sons**, who also exhibited Fairy, Brilliancy, vivid corona and yellow perianth; Fortune, a large Incomparabilis with a rich orange corona and yellow perianth; John Masefield and Rupert Brooke, well-formed Poeticus; Gipsy Queen and Albatros, two beautiful Barrii varieties.

Mr. J. W. **Barr** had several excellent large-flowered Incomparabilis seedlings which possess large coronas of rich orange colour, and he also showed Royal Gold, a splendid rich yellow Trumpet variety; Michelo Angelo, an Incomparablis variety with a fascinating reddish-orange Picotee-like rim to the corona and a yellow perianth; and Fantin Latour, a large Trumpet variety of rich yellow colour. In a small collection Messrs. **Cartwright and Goodwin** displayed good vases of Rosalie, orange corona and white perianth; Evangeline, a dainty Leedsii, and Fleetwing of the same type but with larger, lemon-coloured corona.

There were many seedlings of merit in the grand collection set up by Mr. J. L. **Richardson**, whose standard varieties included Nevis, sulphur trumpet; Florists' Delight, Golden Prospect, Royalist, Luxor and Mustapha, rich golden yellow Trumpet varieties; Sunrise and Medusa, Barrii varieties with vivid coronas; and Scarlet Gem, a showy Poetaz variety.

In a well arranged collection the **Donard Nursery Company** displayed vases of Cernuus, a sulphur-yellow double Daffodil; Prospector, Gog, Magog and Grenade, large Trumpet Daffodils of rich yellow colour; Miss Prim, white Trumpet; Croesus, Macebearer and Dragoon, Barrii varieties.

Messrs. J. **Carter and** Co. made a very attractive Narcissus border, wherein they planted excellent breadths of King Alfred Daffodil and many excellent Poetaz varieties, including Admiration, Sovereign, Haemon and Lucrèce.

A valuable group, principally of Darwin Tulips growing in ornamental bowls of fibre, was exhibited by Messrs. R. H. **Bath, Ltd**. The chief varieties were Violet Queen, Inglescombe Yellow, Orion, and The Sultan. Associated with the Tulips were bowls of floriferous Irises and large-flowered Scillas. Messrs. **Bath** also had an interesting collection of Narcissi, which included Loud Speaker and Sulphur King, large trumpet varieties; Bath's Flame, Brilliancy, and Papilio, Barrii varieties with brightly coloured coronas.

Fruit and Vegetable Committee.

Present: Mr. C. G. A. Nix (Chairman), Mr. J. Cheal, Mr. P. C. M. Veitch, Mr. A. H. Pearson, Mr. H. S. Rivers Mr. Geo. F. Tinley, Mr. T. Pateman, Mr. H. Prince, Mr. F. Jordan, Mr. Ed. Beckett, Mr. E. Neal, Mr. W. H. Divers, Mr. E. A. Bunyard, and Mr. A. N. Rawes.

Mr. E. **Beckett**, Aldenham House Gardens, Elstree, Hertfordshire, showed six varieties of Rhubarb, including Myatt's Linnaeus, Paragon, The Sutton, Hobday's Giant, Victoria and The Streeter. Much the largest stalks were those of Myatt's Linnaeus which Mr. Beckett stated he had been pulling for some three weeks from a bed on a north slope. The Streeter is a new variety which has received an Award of Merit from the Royal Horticultural Society of Ireland. Mr. Beckett stated it is a distinct Rhubarb producing very large, richly-coloured stalks, also that it forces well and is of exceptionally fine quality. Mr. Beckett also showed tubers of Jerusalem Artichoke Fuseau (Topinambour) of Messrs. Vilmorin-Andrieux and Co. He said that this variety of Artichoke is much superior to the ordinary round type and is very prolific. Mr. P. C. M. Veitch stated that he grows this variety which is of superior quality, being very tender and of fine flavour when cooked.

Group.

Messrs. Dobbie and Co. exhibited the following fifteen varieties of Potatos: Epicure, Wonderful, The Bishop, Tinwald Perfection, Mauve Queen, Majestic, Climax, Great Scot, Di Vernon, Incomer, King Edward VII, Golden Wonder, Arran Consul, Mr. Bresse, and Catriona. The tubers were all of the highest excellence from every point of view, and the group proved of great interest for comparison by those who have not grown some of the newer sorts which were included.

MANCHESTER AND NORTH OF ENGLAND.

Friday, March 19.—*Committee Present.*—Capt. W. Horridge (in the chair), Messrs. R. Ashworth, C. Branch, A. Burns, A. Coningsby, D. A. Cowan, J. Cypher, J. Evans, A. J. Keeling, J. Lupton, J. McCartney, E. W. Thompson, and H. Arthur (Secretary).

First-Class Certificates.

Odontioda Ganesa var. Royal Purple (*Oda. Brewii* × *Odm. President Poincare*.—A large flower of good shape, coloured rich purple; the crest of the lip is yellow. From Mrs. **Gratrix**.

Odontoglossum Thetis var. Dusky Monarch (*Dusky Monarch* × *Solon*).—A solid, reddish-purple flower, all the segments having a white margin. From Mrs. P. **Smith**.

Odontoglossum crispum var. Vesper.—A variety with broad, white petals, the sepals being slightly flushed with rose. From S. **Gratrix**, Esq.

Awards of Merit.

Odontoglossum crispum var. Silvo., *Cypripedium Thais var auriferum* and *C. Thais var. compactum*. From Mrs. P. **Smith**.

Brasso-Cattleya Enchantress var. Purity, and *Cypripedium Luna* (*Desdemona* × *Mrs. Cary Batten*). From Col. Sir J. **Rutherford**, Bart

Cymbidium Auriga var. Vesteyanum and *C. Miranda, The Warren variety*. From the Hon. G. E. **Vestey**.

Odontioda Joiceyi var. Imperator. From Mrs. **Gratrix**.

Dendrobium Honeydew (*Snowball* × *Butterfly*). From Capt. W. **Horridge**.

Groups.

The Hon. G. E. **Vestey**, Southport (gr. Mr. B. Collins), was awarded a Gold Medal for a group of Cymbidiums in great variety. Large Silver-gilt Medals were awarded to excellent groups staged by S. **Gratrix**, Esq., West Point (gr. Mr. C. Branch); J. B. **Adamson**, Esq., Blackpool (gr. Mr. R. Taylor); and Mrs. **Bruce** and Miss **Wrigley**, Bury (gr. Mr. A. Burns), respectively.

Capt. W. **Horridge**, Bury (gr. Mr. A. Coningsby), was awarded a Silver Medal for a group of well-grown Dendrobiums. Messrs. J. **Cypher and Sons**, Cheltenham, staged a group, and were also awarded a Silver Medal.

GENERAL BULB GROWERS OF HAARLEM.

The various floral committees of this Dutch society have made the following awards to Tulips and Daffodils on the dates given below.

Tulip Early Yellow.—An early single variety with clear, golden-yellow flowers. December 28. 1925.

Tulip Snow Queen. — A double early white variety with a yellow base. January 11.

Narcissus Sensation (*poetaz*).—The cup is deep golden-yellow with an orange border. The flower is of middle size. January 25.

Narcissus Albino (*white trumpet*).—A white flower opening creamy-white. The trumpet has a large, folded margin. February 1.

Narcissus Empire (*Leedsii*).—The perianth is silvery-white, the small trumpet creamy-white. February 8.

Narcissus White City (*Leedsii*).—The perianth is pure white, the small cup sulphur-yellow. February 8.

Obituary.

George Cypher.—We very deeply regret to learn of the death on Wednesday, March 17, of Mr. George Cypher, the youngest son of the late Mr. James Cypher, of Cheltenham. He had been ailing for some time past, but full recovery was anticipated. Unfortunately, he was taken seriously ill on Monday, the 15th inst., and never recovered consciousness. He was sixty-five years of age and was apprenticed at the Queen's Road Nursery, Cheltenham, and afterwards entered private service. We first made his acquaintance when he was foreman at Oakfield, Wimbledon Park: subsequently he became head gardener to Mrs. Studd, at Bath, where he remained seven years, and then acted in a similar capacity for Sir John and Lady Dorrington at Lypiatt Park, Stroud. This period was followed by seven years service with S. Gratrix, Esq., West Point, Whalley Range, Manchester, where Orchids were a speciality, and in the cultivation of which Mr. George Cypher excelled. After leaving West Point he commenced business on his own account at Gosport, and about twelve years ago retired and settled down at Cheltenham. He was widely known in the west and north of England, and there are many of his friends who will deplore his loss and sympathise with his relatives at Cheltenham.

ANSWERS TO CORRESPONDENTS.

Damage by Rabbits.—*J. D.* A good method of preventing rabbits from injuring the bark of trees is to lightly smear the stems to a height of three feet with ordinary coal-tar; this will not injure the trees. If the rabbits are exceptionally numerous and their food is scarce it may be well to also make a ring of tar on the ground around each tree or group of trees. If the tar is considered too unsightly the trunks of the trees should be encircled with small-meshed wire netting.

Livistona australis.—*A. A.* The Palm you mention, Livistona australis, generally flowers annually when it has reached the adult stage, and does not appear to suffer much in vigour as a consequence. The Aberdeen specimen you mention is by no means the largest plant in the British Isles as you suggest, as there are at least three larger ones at Kew Gardens. The largest of these is planted out in the Palm House, and produces a batch of eight to a dozen large panicles of primrose-yellow inflorescences and flowers in January and February each year. This plant is fifty-one feet high, and the head of leaves is twenty-two feet in diameter

Names of Plants.—*Reader*. The specimens when received were in very poor condition, but we believe No. 1 is Oncidium incurvum, and No. 2, Oncidium Schlinii.

Tree Roots Invading a Neighbour's Garden.—*F. W.* A person must not allow his trees to be a nuisance to his neighbour by reason of their roots spreading underground into such neighbour's property. Provided it can be proved, as would seem likely from the facts as stated, that the damage to the drainage system was caused by the roots of your neighbour's tree encroaching on your property, and that you did not know that the roots were so encroaching, you would appear to have a good cause of action. If, however, you knew that the roots had spread underground into your property you should have stopped the nuisance at once by cutting back the projecting roots.

Walnut Tree.—*O. H.* Walnut trees are best raised from seeds. It is a good plan to raise the plants separately in pots and plant them out while quite young, as the Walnut is inclined to resent transplanting.

Communications Received.—C. A. H.—E. A. B.—Dr. P.—C. B.—P. C.—W. G. C.—J. B.—M. K.—G. H. P.—F. T. B.—L. Bros.

THE

Gardeners' Chronicle

No. 2049.—SATURDAY, APRIL 3, 1926.

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SUPPLEMENTARY PLATE.
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AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 46·1.

ACTUAL TEMPERATURE—
The Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Tuesday, March 30, 10 a.m. Bar. 29.9. Temp. 50°. Weather, Bright, with cold wind.

Research at Rothamsted. No intellectual exercise is more stimulating—nor for a horticulturist more profitable—than to look in, as it were, at Rothamsted, the great agricultural Research Station and to learn how the manifold investigations that are being conducted there are getting on. For, as out of Africa, so out of Rothamsted, there comes ever something new and there are, moreover, always the old discoveries that were made at the Station long ago to be pondered and applied. It may seem strange to suggest that discoveries of first importance made a quarter-of-a-century ago and accepted by all competent agriculturists should still need recalling and emphasising. Yet, so it is. Lawes and Gilbert, when the experiment station was started at Harpenden in 1843, proceeded, as one of their earliest pieces of work, to demonstrate what may be called the proper use and effects of artificial manures. During the succession of years that these experiments were continued it became abundantly evident—and the records are there to prove it—that the most profitable system of manuring consists in the use of both natural (farmyard) and artificial manures. The former—farmyard manure—provides the rooting medium of most suitable kind, admitting of good drainage yet holding the water needed by the plant; the latter, the artificial manures, are growth accelerators and act to some extent specifically on the different members of the plant; nitrogen in the form of sulphate of ammonia, nitrate of soda, etc., builds a large-framed plant—at all events so far as leafage is concerned; phosphates, as for instance, superphosphate of lime, stirs up root growth so that the plants get a firm hold in the soil and hence mature earlier, a fact which those who work on heavy soils, likely to be cold and late, ought never to forget. Potash—the third of the trio of important artificials—helps the plant to move its reserves (of sugar and starch) freely, enables it to stand up against drought and to offer a higher degree of resistance to certain diseases. With these facts firmly impressed in the mind, it is not difficult for anyone to work out—with the aid of the manure merchant—a sound system of manuring. In more recent years Rothamsted has made important additions to these sound foundations of knowledge. It has shown, for example, that systems of manuring must be governed by conditions. Circumstances of weather, crop and climate must be taken into consideration and therefore the general rules need to be modified in the light of local experience and local climate. The researches carried on at Rothamsted are by no means confined to this aspect of cultivation. The large staff of investigators numbering not far short of a hundred is engaged in work of the most varied kind. For example, methods of inoculation of Lucerne with the nitrogen-fixing organism have been greatly improved, thanks to the discovery that this organism—Rhizobium leguminosarum—in the course of its life enjoys a motile phase during which it is able to move through the soil. The rate of progress of this micro-organism in the the soil is, it is true, not rapid—a matter, say, of an inch a day; nevertheless it is evident that wetting which will encourage it to move about will increase the chance of the Rhizobium reaching a rootlet, into which it must penetrate if the Lucerne is to become a self-supplier of nitrogen from the reservoir of the free nitrogen gas of the atmosphere. By providing the micro-organism with a diet containing milk and phosphates this motility is encouraged and inoculation rendered more certain. Yet another discovery in connection with nitrogen fixation in Leguminous plants has recently emanated from Rothamsted. For the partnership between the nitro-fixing organism and the Leguminous plant to be productive the former must supply the plant with nitrogenous food substances and the plant must give the bacteria a *quid pro quo* in the form of sugar. This exchange of commodities, which is the basis of the trade between the Leguminous plant and the nitrogen-fixing micro-organism, can only go on freely if good communications are established between the parts of the roots—the nodules, in which the organism is ensconced and in which it multiplies—and the rest of the plant. So, in a good root nodule there is to be seen a rich supply of vascular tissue, with wood and bast vessels better developed than in other parts of the root. It has now been found that only when a minute trace of a more or less toxic substance—boron—is present are these ample communications made. Without this element which hitherto was not supposed to play any part in the life of plants, the co-partnership between micro-organism and Leguminous plant is not fruitful—indeed the reverse. For, deprived of the supply of sugar from the plant, the nitrogen-fixing micro-organism rebels and instead of supplying food materials, turns itself into a plaguey parasite and leaves the plant to starve. Although it is not possible here to touch on more than a few of the many investigations which are being conducted with such fruitful results at Rothamsted, reference must be made to one which is bound to assume increasing importance. That is the artificial making of manure from vegetable debris, straw and the like. The micro-organisms which preside over the making of a manure heap have been collected and cultivated and may now be had in packets ready for action so that the vegetable debris of a garden or farm may be put to its proper use. The garden bonfire should therefore become, if not a thing of the past, at least a rare entertainment and only for the destruction of things which are diseased or will not readily decay. All the other vegetable waste should go to the Adco heap—the Adco Syndicate, a non-profit-making body, supplies the manure-making mixture of micro-organisms. Thus the ever growing shortage of natural manure should be to no small extent made good and the waste of the garden put to the purpose of recreating the fertility of the garden.

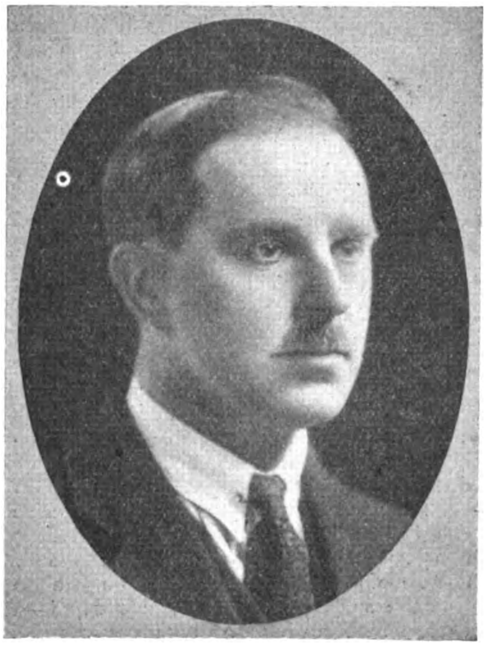
Kew Gardens at Easter.—Kew is always beautiful in spring, and those who have the opportunity to visit the Gardens this Easter will find many attractions. Daffodils out-of-doors will be in their full beauty, and the large breadths of these bulbous flowers naturalised in the grass in various parts will be one of the most popular features. A number of beautiful flowering shrubs are also contributing colour, and everywhere the greenery of the developing trees and shrubs will appeal to all lovers of nature, for the tones are as varied as the forms of the leaves. Especially beautiful are the various species of Magnolia and the species of Prunus, such as P. persica flore-roseo pleno, which has rich, pink flower-buds like those of a Peach tree. The Alpine House is filled with interesting plants in flower, and the Rock Garden contains many bright patches of bloom, for alpines are on the move freely, and some of them flowering splendidly. The many forms of "Megasea" are interesting, and of these Saxifraga ligulata, S. Strachyi and S. cordifolia are well in bloom. The pink-flowered S. ligulata is a most beautiful plant, quite distinct from S. Strachyi, with which it has been confused, for the latter has a white inflorescence and a more obovate leaf. In one of the higher portions of the rockery a bed of dwarf Forsythias over a groundwork of Scilla sibirica is very pleasing, the two colours harmonising grandly. Some of the early Rhododendrons are blooming, the most prominent being the soft, lavender-flowered R. hippophaeoides—a charming bush about three feet tall, covered with pretty heads of bloom. Another interesting Rhododendron may be seen in R. Davidsonianum, which has pale, almost white flowers, dotted with crimson. The dwarf R. Williamsianum and R. repens, the latter with deep red flowers, are also in bloom, and the allied Rhodothamnus Chamaecistus, with light pink flowers, will appeal to all. Amongst the herbaceous alpines is a fine clump of the claret-coloured Anemone pratensis var. montana in flower. Elsewhere, especially near King William's Temple and in the Rhododendron Dell, may be found other early-flowering Rhododendrons in bloom, such as R. praecox R. fulgens, R. sutchuenense and R. dilatatum. The chief display of flowers under glass will be found in the greenhouse known officially as No. 4 House, the stages and beds from end to end being furnished with plants in bloom. The Succulent House, which was recently overhauled, is looking very well just now, and those who are interested in the curious members of the vegetable world known as succulents will find the Kew collection well worthy of a visit. Many of the plants in the Fern Houses are furnished with their new fronds, and here again will be seen much of interest to plant lovers. The group of tropical houses, known as the T-range, is also worthy of a visit, and in the cooler division will be found some of the interesting plants which are being dealt with by Mr. N. E. Brown in *The Gardeners' Chronicle*—the genus Mesembryanthemum. A few Cape Pelargoniums are also in bloom in this range, and in the warmer division many Begonias are attractive, while there are some fine specimen exotic plants on the wall of the tank in which the Victoria regia is grown. The principal attractions in the Orchid Houses are the Cymbidiums, of which Sir George Holford presented a choice collection to Kew. The Palm House, which is always attractive, is looking very smart, whilst the Temperate House contains many subjects in flower, although doubtless most visitors to this huge glasshouse will be attracted by the Rhododendrons in the Himalayan section, many of the splendid specimens being now at their best. Good progress has been made with the special Rhododendron House, but so far no planting has been done.

Phyllody in the Primrose.—At the meeting of the Linnean Society, held on March 18, Mr. J. L. Sager exhibited fresh specimens of Primula flowers from a plant originally found in a disused burial ground at Lympstone in south Devon. The petals of the flowers were like foliage leaves in all respects except size, and were extreme examples of phyllody of the corolla. The president, Dr. A. B. Rendle, remarked on the unusually fine development of the condition in Mr. Sager's specimens, and stated that Mr. F. J. Chittenden had also sent a specimen of a virescent Primrose from Maidstone, in which, however, the petals were not nearly so distinctly foliaceous as in Mr. Sager's plant; the Maidstone specimen represented the well-known green Primrose, figured by Parkinson and Gerard. In reply to a question by Sir Sidney Harmer, Mr. Sager stated that he would endeavour to regulate pollenation by protecting the plant. Dr. Rendle exhibited a dried specimen (from Brockenhurst) illustrating phyllody of the calyx; the sepals were much enlarged and broad and leaf-like in appearance. He also showed a fine specimen of a caulescent Primrose sent by Mr. Walter Barratt, F.L.S. from Mullion, Cornwall. The very short stem on which the flowers are borne in a normal Primrose had become much elongated, and bore a truss of true Primrose flowers. The inflorescence suggested a huge Oxlip.

Sibthorp's Herbarium Specimens at Kew.—We learn that in the Alexander Prior Herbarium bequeathed to Kew in 1906, there were specimens "ex Herb. Sibthorp." It was obvious that these were of considerable importance, not merely to Kew, but as supplementing the Sibthorp collection at Oxford. With the help of Dr. Claridge Druce, the plants were checked against those at Oxford, and two species, Dianthus serratifolius and Lysimachia anagalloides, were found to be missing from the Sibthorp Herbarium proper; these were presented to Oxford for inclusion in the Sibthorp Collection. The remainder, retained at Kew, include many type specimens, and Messrs. Shaw and Turrell enumerate these in the *Kew Bulletin*, (No. 3, 1926), in the hope that the lists may contribute to the much-needed revision of Sibthorp's collections.

Paeony Exhibition at Boskoop.—The Dutch Paeony Growers' Association are organising their first Paeony Exhibition, which is to take place at Boskoop, from the 15th to the 18th of June, inclusive. The flowers should at that time be looking their very best, and the occasion will offer a fine opportunity for visitors to see the progress which has been made in the development of the Paeony during the past century

Mr. Charles Hodgson.—We have pleasure in publishing the portrait of one of our contributors who has established a fine reputation as a cultivator in the eastern counties. A native of York, he was apprenticed at Cowick Park Gardens, Snaith, Yorkshire, where he served for three years before passing on to Milbank House, Warrington, where the late Mr. W. Bolton had a fine collection of Orchids. His next appointment was as journeyman at Barrell's Park, Warwickshire, where he obtained good all-round experience during his stay of three years. The succeeding two years were spent in the gardens at Woodstown, Co. Waterford, Ireland, and for the latter part of this period he served under Mr. E. Thayer. Messrs. James Veitch and Sons then obtained him an appointment as foreman at Rotherfield Park, Alton, Hampshire, where he served under Mr. Wilmot Yates, before that gentleman commenced business on his own account. When no more than twenty-seven years of age, Mr. Hodgson became gardener to the late Major F. E. Pearson, at Brent Eleigh Hall, Suffolk, and while here, he became a successful exhibitor of Chrysanthemums, Roses and Sweet Peas. In 1915, Mr. Hodgson enlisted, and until 1919, served with the Hampshire regiment in India. Before his discharge from the army, Mrs. Pearson offered him the position of gardener at Acton Place, Sudbury, Suffolk, an estate she had recently purchased. This position Mr. Hodgson accepted in 1919; since then the garden has been remodelled, and lawns and a sunk garden now occupy the site of the former kitchen garden. New glasshouses have been erected, an orchard planted, and a portion of the park added to the pleasure grounds, which are still in course of development—all under Mr. Hodgson's supervision. Although not posing as a specialist, in any department, Mr. Hodgson has been particularly successful in the cultivation and exhibition of Roses, Sweet Peas, Irises and Chrysanthemums. He does not come from a gardening family, but agrees that heredity may count for something, as his grandfather was gardener at Heslington Hall, about ninety years ago; his elder brother has also followed the horticultural profession and is employed in the Parks Department at Winnipeg, Canada.



MR. CHARLES HODGSON.

Examination and Certification of Apiaries.—The Ministry of Agriculture desires us to state that arrangements have been made for the inspection, on application, of apiaries where bees are raised for sale. Where no brood diseases are found to be present in an apiary, an official certificate to that effect will be issued. For the present, it will not be possible to include Acarine disease in the scheme, and the certificates will relate solely to freedom from brood diseases, though they will not be issued for apiaries where Acarine disease is seen to be present. The frames containing the combs of the colonies that are passed on inspection will be stamped to that effect, and this will afford protection to the purchaser. Owners of apiaries where bees are raised for sale are invited to make early application for inspection to the Secretary, Ministry of Agriculture, Whitehall Place, London, S.W.1. Fees at the rate of £2 2s. per day, with a minimum of £1 1s. will be charged for this service.

Japanese Trees and Shrubs for the London Parks.—We recently referred in our columns to the arrangements being made for an exchange of trees and shrubs between the London County Council and the Municipal authorities at Tokyo. Under this arrangement nearly one thousand trees and shrubs have reached London safely from Japan. These include about thirty varieties of flowering Cherries and Plums, many of which are expected to be quite new to cultivation in this country. In addition to the plants, a collection of about fifty-five kinds and varieties of seeds of trees and shrubs has been received from Tokyo. The L.C.C. anticipates that this consignment will more than supply their needs, and they propose to distribute the surplus between the Botanic Gardens at Kew, Oxford, Cambridge, Edinburgh, Dublin and Belfast.

A New Hybrid Cypressus.—In the current issue of the *Kew Bulletin* (No. 3, 1926), Mr. A. Bruce Jackson and Mr. W. Dallimore give a detailed description, with illustrations, of the new hybrid Cypressus, C. Leylandii, referred to in our issue of February 6. This natural hybrid is growing on the estate of Capt. J. M. Naylor, at Leighton Hall, near Welshpool, but it appears that in 1888, Capt. Naylor's uncle, Mr. C. J. Leyland, also raised plants from seeds of C. nootkatensis, which grew near a tree of C. macrocarpa, at Leighton Hall. These seedlings were transferred to Haggerston Castle, Northumberland, and six of them gave ample evidence of their hybrid origin. At Leighton Hall a tree raised from seeds of a specimen of C. macrocarpa growing near C. nootkatensis is now twenty-eight feet high, although only fourteen years old, and it has borne cones. Thus it will be seen that each species has, in turn, been the seed parent as well as the pollen parent of C. Leylandii.

Certified Seed Potatos in the United States.—An American contemporary states that the production of certified seed Potatos fell from 7,372,801 bushels in 1924 to 3,744,363 bushels in 1925. The total for 1923 was 4,172,262 bushels, for 1922, 2,216,808 bushels, and for 1921, 1,410,970 bushels. Cobbler is the most popular variety, with 1,136,593 bushels; Green Mountain comes next with 906,259 bushels, and Spaulding Rose, third, with 403,900 bushels. The State of Maine is credited with 40% of the total production of seed Potatos.

National Dahlia Society. — The schedule of the National Dahlia Society's exhibition to be held in the Royal Horticultural Hall on Wednesday, September 8, contains fifty-five classes for the popular autumn flower the Society was formed to encourage. In certain classes, including the Monro Challenge Cup class for floral designs composed of Dahlias, the value of the cash prizes has been increased, and we find that in all classes, except those for show and Cactus Dahlias, artificial support to the blooms is prohibited. At the request of the Society, the Council of the Royal Horticultural Society has arranged to carry out a special trial of Mignon Dahlias during 1926, and this trial will be in addition to the trials of novelties recommended by the Joint Committee of the N.D.S. and the R.H.S. during 1925. Copies of the schedule may be obtained from the Hon. Secretary, Mr. W. J. Chittenden, 2, Dents Road, Wandsworth Common, S.W.11.

Children's Classes for Violas.—A meeting of an unusually interesting character was held at Guildford on Saturday last, in the Borough Hall, under the auspices of the Guildford and District Gardeners' Association. Previous to the meeting no fewer than eleven thousand Viola plants were distributed to children residing in the Surrey County town. This distribution was for the purpose of encouraging the children to compete at the Society's exhibition when the competitions will be for Violas grown in pots. At the meeting on Saturday, a short address was given for the purpose of pointing out the pleasure and advantages to be derived from the love and practice of horticulture; this was followed by a practical demonstration in potting. The method of potting Violas was shown by Mr. Newman, gardener to the Earl of Onslow, Clandon Park, Guildford, who at the same time exhibited Violas in bloom, and described how their propagation could be effected. Illustrations of Viola flowers, cuttings and plants were also shown. The youngsters appeared to thoroughly enjoy this novel function.

London Squares and the Public.—Periodically the suggestion is made that the London Squares should be thrown open to the public, and the most recent advocate seems to be Mr. Topham Forrest, the chief architect to the London County Council, in the course of his lecture on "London a Hundred Years Hence." If correctly reported, Mr. Forrests' desire would be to entirely remove the enclosing railings and the belt of shrubbery which usually surround the private squares, and have grass bordering the roads or streets. In some quarters it seems to have been felt that Mr. Forrest made a strong case for his proposal. But his supporters do not appear to appreciate the economics of the situation. Nearly all the London squares are in intimate association with the residents of the surrounding houses who have the sole rights in the enjoyment of the gardens. But these rights carry with them responsibilities, and in the majority of instances the residents are bound by covenant to contribute towards the cost of maintenance. Any interference with these private grounds would seriously depreciate the values of the surrounding houses, and this would inevitably tend to a reduced rateable value, so that even if it were possible for the squares to be taken over by public bodies for public use, to the cost of upkeep should be added the loss on the rates. There can be little doubt but that, under public bodies the cost of maintenance would greatly increase. At present the work in many of the London Squares is done under contract, and there is no need for any custodian. But if the grounds were thrown open it would be necessary to appoint keepers in order to guard against damage to the shrubs and the turf.

Gardens in Song.—On Tuesday, April 20, Miss D. Eardley-Wilmot will be the guest of honour at a Garden Club dinner, and will speak afterwards on "Gardens in Song," illustrated by songs by Mr. Eric Godley. Arrangements are being made for members to visit Kew on Wednesday, May 5, to see the Bluebells. Members wishing to go are asked to send their names to the Secretary, Garden Club, Limited, 9, Chesterfield Gardens, W.1.

Carter Medal Awarded in Canada.—The Canadian Horticultural Council has awarded the Carter Medal to Mr. Henry J. Moore "for Outstanding Achievement in Horticulture." Mr. Moore is a plant-breeder of no mean ability and with pen and voice he has for many years done good work in promoting horticulture in the Dominion, but his great work has been the organisation and conduct of a system of plant registration, for the purpose of recording the origination and qualification of new varieties and hybrids of garden merit.

R.H.S. Amateur Show.—We understand there is a possibility of American amateurs competing at the Royal Horticultural Society's Amateur Show which is to be held at the Society's Hall, Vincent Square, on 22nd June. Mrs. Edward Harding, of Burnley Farm, Plainfield, New Jersey, has written to Sir William Lawrence, treasurer of the R.H.S., stating that she proposes to enlist the interest of other American amateurs, and with their assistance, to send over various examples of American floriculture, especially Paeonies. It will be remembered that Mrs. Harding, who is well-known to the gardening fraternity on both sides of the Atlantic, has presented cups for Paeony competitions at Vincent Square. The long distance which the American exhibits will have to travel does not in any way daunt this enterprising lady who believes that with the aid of cold storage she and her American friends will be able to compete successfully with British amateurs

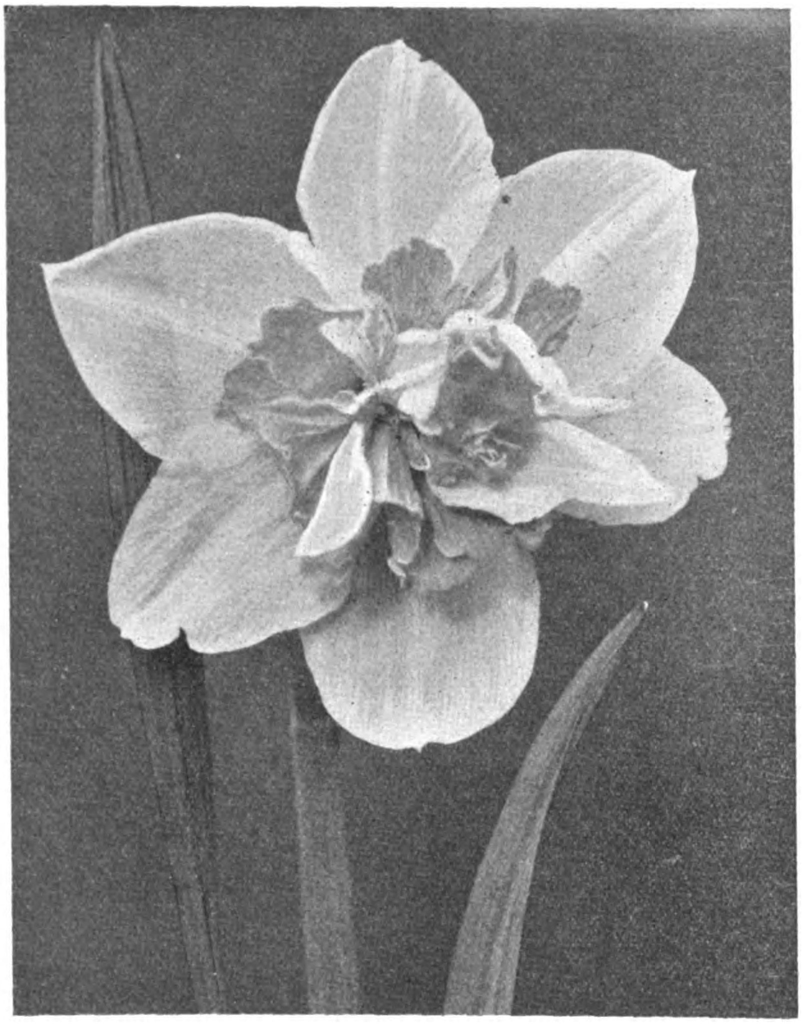


FIG. 121.—NARCISSUS ORANGE BRILLIANT.

R.H.S. Award of Merit, March 24. Flowers double, soft yellow and orange. Shown by Messrs. R. H. Bath (see p. 241.)

Appointments for the Ensuing Week.—Tuesday, April 6: Royal Caledonian Horticultural Society's meeting. Wednesday, April 7: Royal Horticultural Society's Committees meet (two days); Falmouth Spring Flower Show (two days); Royal Horticultural Society of Ireland's Spring Show (two days); Instow Spring Flower Show; Abingdon Horticultural Society's meeting. Thursday, April 8: Manchester and North of England Orchid Society's meeting.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Crystal Palace.*—Now that the most formidable part of the difficulties connected with the arrangements in the Crystal Palace is at an end, the Executive have turned their attention to minor details, and among other things have arrived at the following decision :—The Executive Committee are willing to grant spaces in the building to a small number nurserymen for the purpose of decorating the building with rare or handsome plants, or for the sale of cut flowers. The conditions upon which such spaces will be granted are the following :—(1) The exhibitor is to fit up his space at his own expense. (2) He is to keep the space constantly filled during the time the exhibition is open, commencing from the 1st of May, at his own cost. But as the executive are aware that considerable difficulty may occur in maintaining the collections in the same excellence in the latter as in the early part of this period, they will be satisfied if the spaces are only filled after July with plants of good foliage. (3) The plants required to replace such as are removed must be brought into the building and put in perfect order one clear hour before the admission of the public, in the morning. If any are to be removed, they must be taken away half-an-hour after the close in the afternoon. (4) The executive will supply water without charge, but can incur no other expense. (5) The exhibitors will be permitted to sell flowers in the building and to distribute cards or lists of the objects they may have for sale on their own premises. Persons desirous of obtaining space upon the above conditions are requested to make immediate application, in writing, to the Executive Committee, at the building in Hyde Park, stating what kind of plants they are able to exhibit, and how many superficial feet they can undertake to keep filled. *Gard. Chron., April 5, 1851.*

The Week's Work.

THE ORCHID HOUSES.

By J. Collier, Gardener to Sir Jeremiah Colman, Bart., Gatton Park, Reigate, Surrey.

Cool-growing Oncidiums—Numerous species of Oncidium may be grown successfully in a cool house, under similar cultural conditions as Odontoglossums. Among these are some of the most useful subjects for purposes of grouping; I refer most particularly to those of the O. macranthum type, O. undulatum, O. superbiens and O. monachicum. They are now producing their flower scapes which grow many feet long on strong healthy plants. As the inflorescences increase in length the usual plan is to train them to show to the best advantage by placing four or five neat, painted sticks within the outer edges of the pot at equal distances, and to twine the spike around the outsides of them. This should be done previous to the scapes becoming very far advanced; about six inches of the end of the spike should remain loose, as the spikes are very brittle and soon snap. When the scapes are observed the plant should be placed in the lightest position in the house. Guard against attacks of thrips and other insect pests by spraying the plants regularly.

Oncidium Marshallianum—This is a useful summer-flowering species, and one of the most serviceable Orchids for exhibition and decorative purposes. This plant often produces spikes of several dozen flowers which are brown and yellow in colour. The free-flowering characteristic of this species is probably the cause of its deteriorating after two or three years of cultivation, therefore everything should be done that will contribute to its well-being, such as removing the flower-scapes within a reasonable time after the flowers have expanded. The tufted-growing Oncidiums, such as O. flexuosum, O. obryzatum and O. haematochilum, are also very showy and useful, when well-flowered. The best time to repot these species is immediately after the plants have finished flowering. A suitable compost consists of equal parts of Osmunda-fibre, cut into short portions, half-decayed Oak leaves that have been rubbed through a half-inch sieve, and Sphagnum-moss, mixing sufficient crushed crocks with the compost to ensure it being open and porous.

THE KITCHEN GARDEN.

By F. Streeter, Gardener to Lord Leconfield, Petworth Park, Petworth, Sussex.

Asparagus.—Where space for the various crops is limited it is a good plan to place four inches or five inches of well-decayed manure between the Asparagus beds before raking off the roughest of the surface material into the alleys. The latter should then be worked into a fine tilth and planted with either Cauliflowers or Lettuces, according to demands. So soon as the permanent beds are raked down very finely give them a good dressing of salt. Where new beds are to be made this work should now be attended to. Select a well-drained site; if the soil is heavy. cold clay, the bulk of this should be wheeled away and friable loam substituted. Mark out the beds four feet wide and provide for an alley two feet wide between the beds. Place a neat Oak post at each corner to mark the position of the beds. I advise planting three-year-old crowns obtained from a reliable source. Plant three rows on each bed, allowing a space of about fifteen inches from plant to plant. Have a few barrowloads of very fine, rich soil at hand, spread the roots out evenly and place some of the fine soil over the roots. Do not cut any shoots the first season, nor attempt to grow other crops on the beds. Keep the soil thoroughly free from weeds at all times.

Peas.—Continue to plant out main-crop marrowfat Peas as they become ready, and before becoming drawn, and make fresh sowing each week. Where there is sufficient labour, I strongly advise all Peas to be sown in boxes and planted out. If sown outside, do not sow too thickly, for this is often the cause of failure. Stake each row when planted, and intercrop the rows with Spinach.

THE FLOWER GARDEN.

By F. C. Puddle, Gardener to Lord Aberconway, Bodnant, Taly-Cafn, North Wales.

Crinums.—These handsome, bulbous plants are worthy of extensive cultivation for they add greatly to the charm of the garden during August and September; they are also valuable for supplying cut blooms. Crinum Powellii and its variety alba are hardy in most parts of the country, provided they are planted at the foot of a wall, in a well-drained, sunny border. April is, perhaps, the best month in which to plant the bulbs. The border should be trenched deeply, and the bulbs planted about nine inches deep, with the long, tapering neck just protruding above the surface of the soil. Crinum Moorei is only hardy in the milder parts of the country, but where it can be grown out of doors it is worth growing. Crinum capense, although not so stately as the other species, is the hardiest of all, and may be planted in the open border.

Agapanthus umbellatus.—This lovely Lilaceous plant is hardier than is generally imagined, and where it has been tried in damp positions without success, I would recommend that it be planted in a similar position to that which I have advised for Crinum Powellii. Established plants should not be unnecessarily disturbed, but any replanting which may be required should be completed as early as possible, as the plants are just commencing their season's growth. This Agapanthus may be grown in the open in the colder parts of the country. if it is given protection during the winter, but the protective material should be so arranged that the plants are kept moderately dry.

Hardy Ferns.—Ferns are valuable plants for furnishing moist, shady places, and many a dull corner may be made both interesting and attractive by planting a varied selection of species. Any necessary dividing and replanting should be done now, and all dead and unsightly fronds removed before the young ones unfold. A top-dressing of leaf-mould and loam will greatly benefit established plants. The hardy Fernery may be considerably improved by planting a selection of appropriate flowering plants with the Ferns, the most suitable being Helleborus orientalis, Orchis foliosa, Cypripedium spectabile, hardy Cyclamens, Primulas and various species of Anemone.

Erumuri—The growth of these plants is advancing rapidly, and the flower-spikes are visible. The plants are frequently injured by spring frosts, and it will usually be found that the injury is aggravated by water lodging in the centre of the crowns. A hand-light placed above the crowns, but propped up so that the plants have room for the development of their leaves, will afford suitable protection.

HARDY FRUIT GARDEN.

By W. Auton, Gardener to Viscount Elveden, Pyrford Court, Woking, Surrey.

Black Currants.—Reputedly clean plantations of these bushes should be examined periodically for big bud as several-years-planted bushes sometimes have a tendency to become infested and if affected buds are removed and destroyed on their first appearance the spread of the pest is at least retarded. For private establishments where good berries of choice appearance are essential, Boskoop Giant is a favourite variety and so far as my experience goes, it is not unduly susceptible to big bud, particularly if the plantations are young; as the propagation and growing on of young stock is very easy this presents no difficulties. It is not wise to rely on one variety, however, when there are several good ones available, and Baldwin and Seabrook's Black should also be grown. Not only is a longer season secured by growing two or three varieties, but there is less liability of light crops due to mal-fertilisation.

Aphides.—The season is abnormally early, all fruit trees are in a forward state and one may be sure that pests will keep pace with the season. The damage done to fruit trees generally by aphides is much greater than is usually supposed. They puncture the epidermal tissue, suck the juices, rob the tree of vitality and render it more susceptible to the attacks of other pests. Much of this may be prevented by timely spraying, and it is a good plan to use a nicotine wash between the opening of the leaf-buds and the bursting of the flower buds. To wait until the leaves have curled is to lose any possible help from spraying, as the pest is then securely protected and no spray can reach it. A heavy syringing with clear water before the leaves have curled will be much more helpful than any spray can be afterwards.

The Fruit Store.—With the wider fluctuations of outside temperatures common to this season the ventilation of the fruit room calls for careful attention. An important factor in keeping fruit in good condition is maintaining a uniform temperature, hence the sudden admission of warm air should be guarded against. If the fruit-room is properly constructed, comparatively little opening of the ventilators will be all that is necessary to maintain equable conditions in the interior of the room.

Apricots.—These are usually the first fruit trees on walls to need disbudding, and they should receive attention so soon as the shoots are long enough to handle. Disbudding should be done gradually so as not to remove too much growth at any one time, or this may result in a check to the tree. On the first occasion special attention should be given to the removal of all badly-placed shoots, after which the work should be resumed at intervals of a few days until the shoots have been reduced sufficiently to prevent crowding of the growths.

Plums.—The question of self-sterility in Plums has not yet been entirely cleared up, but there is no doubt that it is sometimes the cause of crop failure. The choicer Gages are self-sterile, as also are the closely-related varieties, Coe's Golden Drop and Jefferson. In modern plantations these varieties are usually planted in proximity to other varieties which flower at the same time, but in older plantations where such conditions do not exist, much may be done by transferring pollen by means of a piece of rabbit's fur. Indeed, even apart from self-sterility, the general practice of artificial pollenation has much to recommend it, especially in uncertain weather when bees remain in the hive.

PLANTS UNDER GLASS.

By John Coutts, Assistant Curator, Royal Botanic Gardens, Kew.

Coprosma Baueriana var. variegata.—When well-grown this plant makes an attractive specimen for the greenhouse stages; it may be easily propagated at this time by means of cuttings rooted in a propagating case provided with bottom heat. The subsequent cultivation presents no difficult, as the plant grows freely in a greenhouse. but requires some attention as regards staking and tying to produce shapely specimens.

Buddleia asiatica.—This sweetly-scented.winter-flowering plant should be more generally grown for conservatory decoration. Cuttings may be rooted at present in a close case furnished with slight bottom heat; some care is required as the cuttings are apt to damp off if the case is kept too close. The young plants should be pinched once to cause them to develop several shoots. Plants grown on in five-inch pots in a cool greenhouse make useful subjects for the plant-stage in their first year. But they are at their best in their second year. After flowering, the young plants should be cut hard back, and when they have started into growth they should be placed in eight-inch or nine-inch pots, in which they should attain a height of six feet to eight feet by the autumn. During the summer they are best plunged out-of-doors in an open, sunny position.

Buddleia officinalis.—This species may also be propagated by means of cuttings inserted at this time. It is not such an attractive plant as the former but its honey-scented flowers make it a favourite with some. It is by no means a difficult plant and succeeds under the treatment advised for B. asiatica.

Pandanus Veitchii, P. Sanderi and P. utilis.—Small specimens of these plants are very useful for house decoration, and where they are in demand for this purpose young stock should be maintained by rooting successional batches from young side-shoots, inserting them singly in small pots of sandy soil and plunging them in a warm propagating case.

Clianthus puniceus.—This exotic is very useful for covering pillars, rafters, and back walls in the conservatory; it is easily raised from seeds or cuttings, and may be grown and flowered in pots, although it is seen at its best when planted out in a bed or border. The plant grows freely in any good potting compost, and its successful cultivation presents no difficulty, except for the fact that it is very subject to attacks of red spider, which may, however, be kept in check by vigorous syringing. There is a white-flowered variety, also a strong-growing form known as magnificus.

Reinwardtia tetragyna and R. trigyna.—These two beautiful, yellow, winter-flowering plants should be propagated at this time. Young shoots will root readily in a close case in an intermediate house, and when rooted they should be placed singly in thumb pots. They will grow freely in any good potting compost, and should be potted on as they require it until they are in five-inch or six-inch pots. Pinch the shoots several times to ensure shapely specimens. The plants should be grown in cool conditions during the summer; this is very important as they are subject to attacks of red spider, which must be guarded against by frequent and vigorous syringings. Well-grown plants are very beautiful for winter decoration in the conservatory.

FOR NORTHERN GARDENERS.

By A. T. HARRISON, Gardener to the MARQUIS OF AILSA, Culzean Castle, Maybole, Ayrshire.

Pruning Roses.—The pruning of dwarf Roses of both H.P. and H.T. classes should now be done, leaving recently-planted bushes unpruned for some little time, as these are much slower in starting into growth than well-established plants. In pruning Roses no hard and fast rule can be laid down, unless it be that all weak growers should be pruned harder than the more vigorous ones. All old and bark-bound wood should be removed, and weak sideshoots shortened severely. Where vigorous growers persistently refuse to flower satisfactorily, a number of shoots should be left intact and pegged down to the soil, when the side-shoots will produce quantities of flowers. These layered shoots may be cut away the following season, and young growths pegged down to take their places in turn.

Transplanting Plants in Frames.—Calceolarias, Pentstemons, and other plants of a like nature, may be lifted and replanted in rough shelters in good soil, where they can still be protected from frost. Any temporary erection will suffice, and the old plan of making Celery trenches early and planting these subjects in them for a time, covering the plants when necessary with spare sashes or mats, has much to recommend it. Plants shifted now will lift later with splendid balls of soil attached, and are in every respect superior to those which have been grown in frames without transplanting. The frames thus left free may be filled again with other seedlings, such as Antirrhinums, Stocks, Asters, etc., and the congestion which usually occurs in the houses at this season of the year will, to a large extent, be obviated by adopting this method.

Cold Vineries.—In vineries which were closed during February the buds are now developing, and if the rods have been lowered to cause them to break evenly, they should now be tied in position. Do not tie them too tightly, but give the tar twine or other material used two or three twists around the supports and the vine-rods. This method gives them ample support in the downward direction while leaving them free to move sideways, which is an advantage when tapping or shaking them to ensure an even distribution of the pollen. So soon as the best bunch on the lateral is discerned, all weaker shoots should be rubbed off, leaving only sufficient to cover the trellis. This disbudding should not be completed in one operation, but the work spread over several days. Keep the houses well-damped down during sunny weather, and, as growth advances, admit more air through the top ventilators, but keep the front ventilators closed to prevent cold draughts. Close the houses as early as possible in the afternoons, so that a warm, growing temperature may be maintained for the greater part of the night.

Snowdrops.—When these bulbous plants have passed out of flower, and before the foliage has died down, divide and replant them where they have become overcrowded, or if some rearrangement has been decided on, as then the areas to be planted may be filled to the best advantage, the leaves being above ground and visible as the work proceeds. The results next flowering season will be much better than when dormant bulbs are planted in autumn, and the plants will suffer very little, if any, check, if replanted now while the ground is still moist.

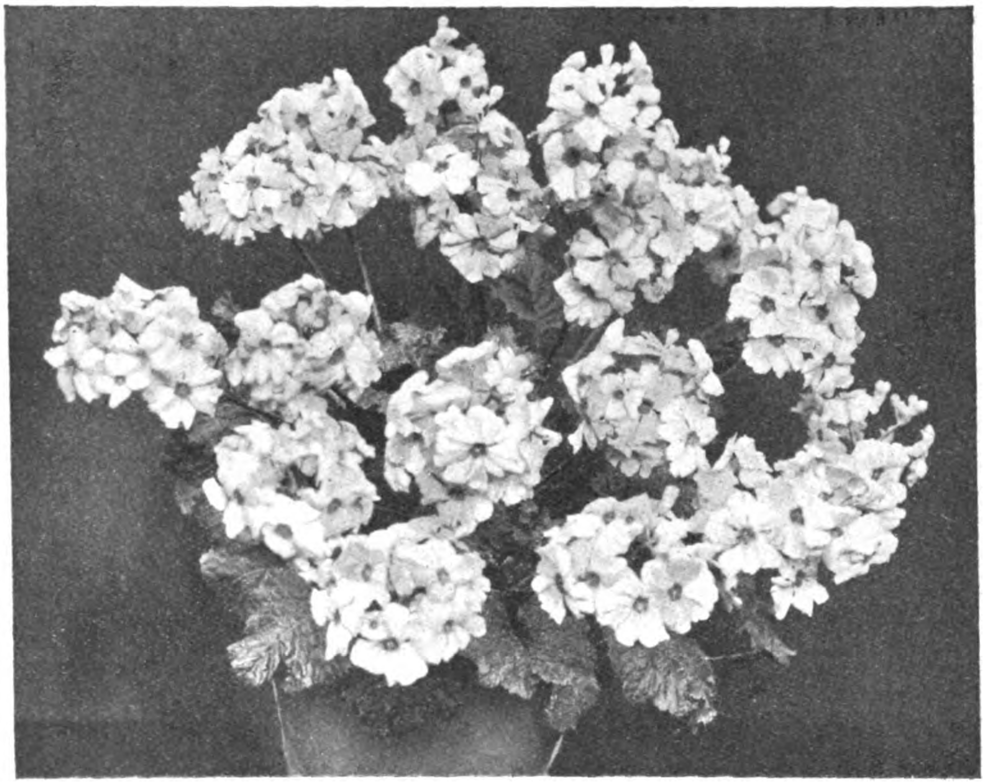


FIG. 122.—PRIMULA MALACOIDES VAR. DWARF ECLIPSE.

R.H.S. Award of Merit, March 23. Flowers bright mauve.
Shown by Messrs. Sutton and Sons (see p. 241.)

Kniphofias.—The clumps of these very handsome, autumn-flowering plants require to be broken up and divided occasionally. The present is the best season to perform this operation, and the ground the plants are to occupy should have been deeply dug and well-manured previously; if it is desirable that they be replanted on the same site, fresh soil from another part of the garden should be added, and the whole deeply worked. Small or weakly pieces should be put out in rows in the reserve garden; they will form good plants in the course of a year or two. These remarks apply to the K. aloides section which comprises many beautiful forms. K. caulescens has quite a different habit of growth; fairly stout stems rising from the ground branch freely, and the foliage is of a beautiful blue-grey colour. This decorative species is easily increased at this season by pulling off the side shoots and, after trimming them of superfluous foliage, placing them as cuttings in rows to which a quantity of sand has been added.

Cauliflowers.—Plants raised from a sowing made last autumn and wintered in cold frames are ready for planting out on a sheltered border. Where damage from slugs is anticipated frequent dustings of lime around the plants, or the application of powdered alum will greatly help to minimise injury by these pests. Spring-sown plants should be pricked out either into boxes or frames, and grown as hardy as possible to be in readiness to form a succession. In mild districts it is possible to practically "bridge the season," finishing with late Broccoli in June, commencing with early Cauliflowers very soon after, and by making successional sowings keep up a supply until the autumn Broccoli is available, to be followed by the winter varieties. Care should be taken with early Cauliflowers that as little check as possible is given them at planting time, and that they do not lack water in dry weather, otherwise many of them will "button" and prove of little value.

TREES AND SHRUBS.

THE HARDY CLETHRAS.

The Clethras are not generally grown, although as late-summer and autumn-flowering shrubs they are very showy, and for fully a month at that period the Clethra collection at Kew is attractive. C. alnifolia, in particular, flowers very freely and pervades the air with the delicious fragrance that suggests the popular name of Sweet Pepper Bush.

Six species and several varieties are cultivated in the open at Kew. Seeds, cuttings under glass in late summer, layers and suckers, provide ready methods of propagation. While Clethras revel in cool, moist root-conditions, the soil should be of a light character rather than close and heavy. In the light, sandy Kew soil, with plenty of leaf-mould added, or peat if available, the plants thrive and sucker very freely, spreading and soon forming large clumps. A liberal mulching of leaf-mould with a little old Mushroom bed manure added, is helpful in keeping the roots cool during the hot summer months.

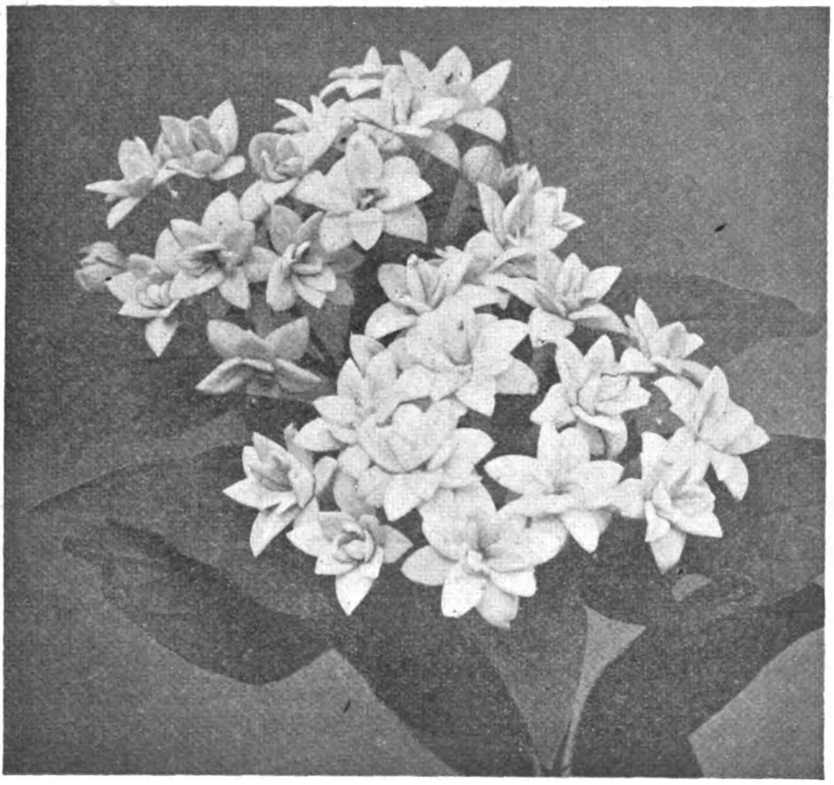


FIG. 123.—BOUVARDIA PRESIDENT GARFIELD.
(See p. 251).

C. alnifolia, illustrated in the Supplement Plate presented with this issue, is a native of eastern North America, and was first introduced in 1731. As the figure indicates, it is of very bushy habit and five feet to eight feet high. The racemes of fragrant, white blossoms are from five inches or six inches long and very freely produced during late June, August and extending into September. The variety paniculata, as the name suggests, has a branched inflorescence, making the individual stems even more showy. The variety rosea (syn. albo-rosea) has pink-tinted flower buds; the variety Michauxii is more compact in habit.

C. tomentosa is also an American species, being found in the south-east United States. Under the varietal name of pubescens Aiton regarded it as a form of C. alnifolia, but it is found somewhat farther south than that species, and is not quite so hardy. The downy character of the shoots, leaves and inflorescences gives the whole aspect of the bushes a greyish appearance, making it easy to distinguish the two species. The plants of C. tomentosa are at least a fortnight later in flowering, and the blooms are a purer white.

The third American species, C. acuminata, is a mountain form with rather larger leaves, brighter green in colour and the veins more prominent.

Four Chinese species are in cultivation at Kew; C. barbinervis (syn. C. canescens), a spreading bush with white flowers borne in loose, terminal panicles, an interesting but not such a showy plant as the American species; and C. monostachya, which in Western Szechuan grows up to twenty -feet in height, and is conspicuous because of the red twigs and leaf-veins.

C. Delavayi is of recent introduction. If the latter proves to be as hardy as the American species it will be a very valuable introduction, but we have not had a really severe winter in recent years to test its hardiness. The beautiful inflorescences of white flowers are superior to those of the best American species.

Another new species for the favoured gardens of the south-west, but of doubtful hardiness around London and northwards, is C. Fargesii, which Mr. Wilson describes as ten feet to fifteen feet in height (in Western Szechuan), with pure white flowers, in terminal clusters of racemes six inches to twelve inches long.

Though possibly not suitable for general outdoor culture, C. Delavayi and C. Fargesii should prove of equal value with C. arborea, the Lily-of-the-Valley Tree, for cultivation in the cool greenhouse. *A. Osborn.*

TREES KILLED BY STARLINGS.

Some time ago, in the pages of *The Gardeners' Chronicle*, I directed attention to a plantation in Kent, the trees in which had suffered greatly or been killed outright by fouling by large flocks of starlings. Several other cases have recently been reported, notably in Hertfordshire and Middlesex, the most serious being that of a wood in North Devon, on Lord Clinton's estate, the trees in which, over an area of several acres, have been practically ruined by the flocks of starlings that frequent them. The matter is fast becoming a serious one, on account of the greatly increased numbers in which these birds have appeared during late years, and the damage they have inflicted on woods and plantations in various parts of the country.

The gamekeeper of an estate in Hertfordshire where great damage has been caused to trees and shrubs by the fouling of these birds, truly states that it is both disagreeable and dangerous to enter the wood in which these birds abound, as the soil is rendered so slippery by the foulings that one can hardly walk without falling, while the branches are polluted to such an extent that one's clothes get spoiled in passing along. The droppings are positively poisonous to vegetation, even the gregarious Dog's Mercury being in some instances killed outright, while all classes of underwood suffer to a considerable extent.

The question is, what can be done to get rid of or keep the birds in check? Every possible method of doing so that can be suggested has already been adopted, such as shooting, trapping and smoking with sulphur, but all to no avail. Reducing the numbers by shooting has had little effect, as in the same flock and plantation it is no exaggeration to state that hundreds have been killed in that way, and to-day the trees are as black with them as ever. When shot at, the birds certainly fly away, but return quickly when the coast is clear, and although some of the dead birds have been left hanging on the branches as a warning to others, the ruse has not been successful, and the damage continues. We have tried placing small heaps of sulphur at various points in the woodland, and on a quiet night after the birds have settled setting fire to these, but to no good purpose.

Perhaps some reader can suggest other means of dealing with the pests. In the case of the Kentish plantation referred to, almost all the trees have been killed outright, or are so injured in health that their recovery is very unlikely. Oak, Ash and Hazel fared worst in this case, but it appears that Coniferous trees, Spruce and Larch mostly, have suffered in the Devonshire plantation. *A. D. Webster.*

BULB GARDEN.

MUSCARI.

Few bulbous plants are more easily accommodated as regards soil or situation than the Muscari, for any ordinary soil and almost any open situation suit them. They may be grown in borders as an edging to flower beds, on hedge banks, in shrubbery borders, or in short grass. When planted in five-inch pots and grown in the alpine house they are equally effective. Planting in wide colonies in shrubbery borders or on hedge banks is to be recommended, and it is not necessary to lift the bulbs more frequently than once in, say, four years.

The form of Muscari conicum known as Heavenly Blue is undoubtedly the most beautiful, having spikes of globular, rich Gentian-blue flowers, which appear from March to May. The flowers are delightfully fragrant, and it is the best Muscari for woodland planting. M. Argaei is a pretty little species from Greece, and well-adapted for the rockery. It bears dainty spikes well set with bluish-purple flowers. M. azureum (syn. Hyacinthus azureus) is an early-flowering species, producing Cambridge-blue bells during February. The forms of M. botryoides (The Grape Hyacinth) bloom from March to April; the flowers range from dark blue to pure white. The variety carneum has white flowers tinged with rose. All three forms are effective for the rockery or for pot culture. Curious and interesting Muscari are M. comosum (The Tassel Hyacinth), with deep blue tassel-like heads, and M. c. monstrosum (The Ostrich Feather or Plume Hyacinth), with large, plume-like heads of feathery, mauve-coloured flowers. *W. Logan.*

ALPINE GARDEN.

ARENARIAS OR SANDWORTS.

While the plants of the large genus Arenaria count for but little in the eyes of the general gardener, those who are devoted to rock gardening find among them a considerable number worthy of their consideration. In the following notes I have endeavoured to include only those of garden value and generally procurable from the nursery trade.

The various species, as a rule, call for the minimum of cultivation, and most of them thrive in sandy soils and sunny positions, although this is not invariably the case, for certain species appear to prefer shade. Many of them thrive admirably on sunny moraines. Propagation is generally effected by means of seeds or division, and by cuttings in the case of a few species which do not divide readily. Most of them, however, spread freely enough to permit of division. All those named are hardy.

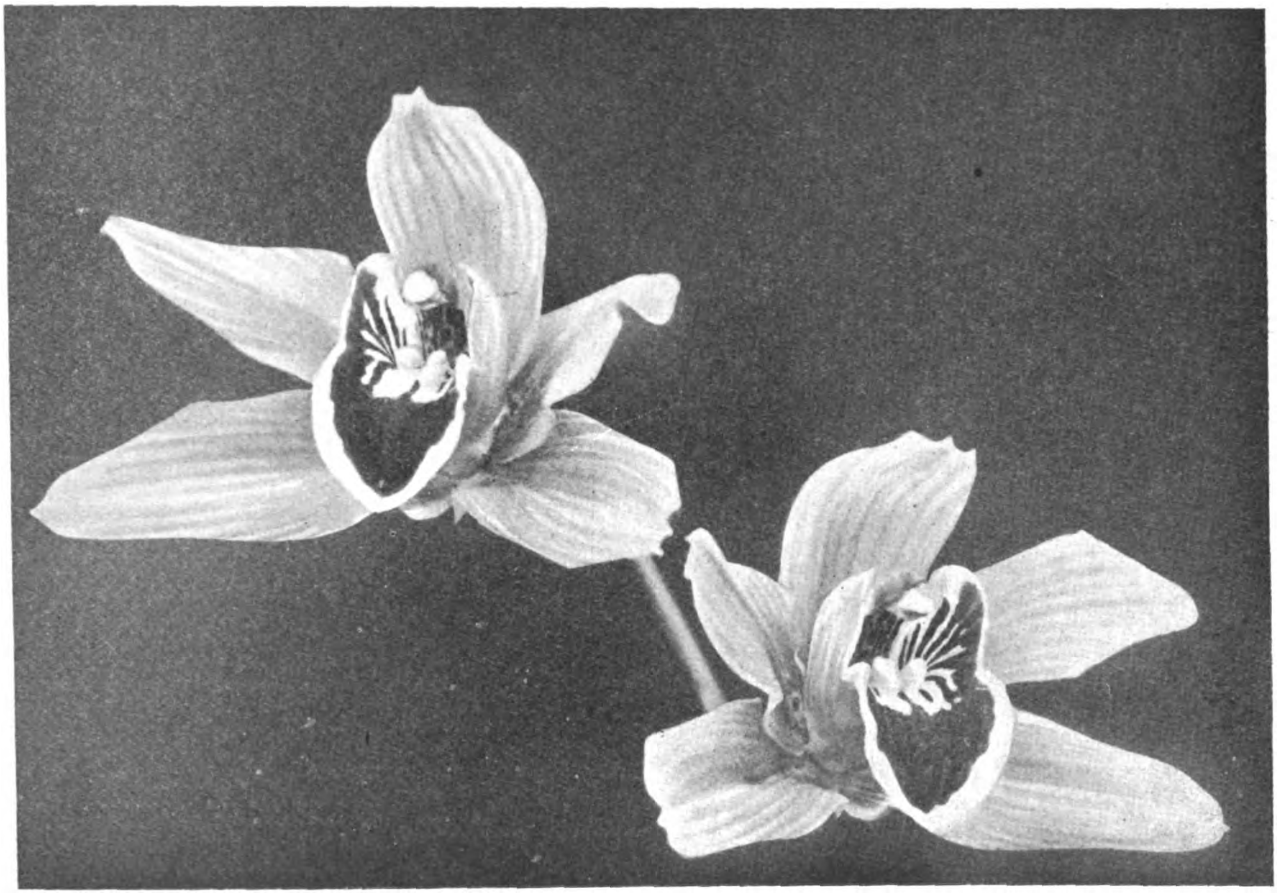


FIG. 124.—CYMBIDIUM PETREL, WESTONBIRT VAR.

R.H.S. First Class Certificate, March 23. Flowers deep rose, crimson and white. Shown by Sir George Holford, Westonbirt (see p. 240).

Arenaria balearica.—The Balearic Sandwort is one of the most delightful of the race. It is a gem for covering cool, moist walls or rocks, and I have seen it employed to advantage in rock gardens among collections of Ferns. It will also grow in many sunny places, but it undoubtedly succeeds best with at least some shade and moisture. It clings closely to the stones or soil, veiling them with a close carpet of tiny leaves, a little above which is borne, on slender pedicels, a galaxy of small, starry, white flowers. The leaves assume a brownish colouring in some places, and this adds to the charm of the plant when in bloom, which extends over a long period in summer.

Arenaria gothica.—This rare native or naturalised plant in England, is not much seen in gardens, where it frequently fails through being planted in a rich soil. It grows best in the moraine or a very dry place. I have grown it successfully in very dry soil in the rock garden, where it was quite pleasing with its shoots closely and symmetrically set with thickish leaves, and adorned during the summer with pure white, large flowers. It is nearly allied to A. norvegica; is there any real specific difference between them?

Arenaria gracilis.—This species comes very near to A. grandiflora and for most gardens one or other of the two will be sufficient; A. grandiflora is the more easily obtained. A. gracilis has slender flower-stems arising above the rather rounded, narrow leaves, and they generally carry two white flowers. The plant is easily grown in light, sandy soil.

Arenaria graminifolia.—This Arenaria is not so full of charm as many others. It has rather dull, grassy leaves and flowers of a poor white, the latter small, and unworthy of great admiration. It is frequently known in gardens as Alsine Rosanii.

Arenaria grandiflora.—The specific name of this Sandwort is misleading. In gardens one finds A. montana frequently named A. grandiflora, which is not very surprising, as some nurserymen sell a plant as A. grandiflora which they claim to be finer than A. montana itself. This is wrong, however, as A. montana "grandiflora" is nothing more or less than A. montana. As for A. grandiflora itself, it is a close-growing, almost Moss-like plant, with starry-white flowers, which are quite small. Probably when it was named it was the largest-flowered Sandwort known. Be that as it may, it is a pleasing species.

Arenaria Huteri.—I first grew this species many years ago, but it was eclipsed by a few other species which had more commanding attractions. It has tufts of fringed leaves and white flowers. It comes from the Venetian Alps and is not at all difficult to grow in the ordinary rock garden in light soil.

Arenaria Ledebouriana.—This little Sandwort is one of the neatest, and is generally satisfactory, although coming from the mountains of the Levant. It has minute rosettes of tiny blue-grey leaves and sprays of pretty little white flowers. It will thrive in sun or in slight shade, and in the other conditions afforded by the rock garden or moraine.

Arenaria montana.—This is one of the indispensable Sandworts for the rock garden. It is very unlike most members of the genus with its foliage large by comparison with that of others, forming trailing masses of egg-shaped grey-green leaves. The plant is adorned from June onwards with many large, glistening white flowers. It is a delightful subject for the sunny rock garden, where it may be allowed to hang over the rocks, covering them with verdure and attractive flowers. It prefers a dryish, sunny place and is easy to grow, although at times difficult to establish. It is a shy seeder, but may be increased by taking off rooted shoots or from cuttings. It is a native of Spain, and is one of the few Sandworts which has earned the distinction of being figured in the *Botanical Magazine* (tab. 1,118).

Arenaria pungens.—Some recommend A. pungens for the sunny rock garden, but we can quite well afford to do without its mounds of spiny leaves and comparatively unattractive white flowers on leafy stems. It may well be left to the searcher after the less common plants irrespective of their garden value.

Arenaria purpurascens.—This is a plant not only of high rank among the Arenarias, but deserving inclusion among the prettiest of alpine flowers. It stands alone in the genus for perfect habit and distinct colouring. The flowers, instead of being white, as in the majority of the garden Sandworts, are of a lovely shade of rose-lilac. They are comparatively small, but are plentiful and large enough to give the little mound of small leaves a delightful aspect in July and August, when the plant flowers. A cool, rather moist place suits A. purpurascens best, and in poor, dry, stony soil I found it advisable to give occasional liberal supplies of pure water in long-continued dry weather. It is increased by careful division or by seeds. A. purpurascens comes from Catalonia and adjacent regions.

Arenaria Saxifraga.—The South European A. Saxifraga is a satisfactory and pleasing Sandwort, with ovate or rounded leaves. The large, white flowers are attractive, and are borne so freely on the branches that they give a good appearance to the part of the rock garden in which the plant is cultivated. It is quite satisfactory in sunny places.

Arenaria tetraquetra.—This is an interesting plant but of no great effect, although fairly common in gardens. The arrangement of the leaves on the shoots is very symmetrical and gives the branches a most distinct appearance. The plant grows well in ordinary light soil, but I have never found it bloom with much freedom. It is easily increased by division.

The synonymy of the members of the genus is difficult to follow in some instances, and as these notes are for practical purposes, I have not endeavoured to deal with this part of the subject but have adhered to the names generally accepted and usually found in nurserymen's catalogues. *S. Arnott.*

ORCHID NOTES AND GLEANINGS.

SOPHRONITIS HYBRIDS.

At the present time, when few species of Orchids are being imported, the hybridist is largely dependent on the primary hybrids, or the old stocks of species still in collections, for use as parents.

Sophronitis grandiflora has been used in some seventy cases as a primary parent, but not always with a species, and it is remarkable that the most brilliant results have been attained by again crossing the primary hybrids with Cattleya, Laelia, Laelio-Cattleya, and even Brasso-Cattleya, and Brasso-Laelia. Thus we have a most comprehensive list of plants in which this small, bright, miniature Orchid is concerned in some way or other as a parent, and in many cases it has imparted its vivid colouring to its progeny. Upwards of two hundred hybrids have been raised with the most satisfactory results.

In considering the different crosses of this important family of highly, and in many cases, vividly coloured Orchids, the influence of some of the primary hybrids on the progeny is astonishing. Amongst the many primary hybrids of Sophro-Cattleyas, S.-C. Doris has been recorded as a parent twenty-five times, S.-C. Saxa, eleven times; S.-C. Thwaitesii, six times Sophro-Laelia heatonensis, twenty times; S.-L. Psyche, ten times; S.-L. Gratrixiae, eleven times; and, most remarkable, Sophro-Laelio-Cattleya Marathon, twenty-nine times, with the result that this plant is a parent of some of the best hybrids in the whole family.

In stature, size, and vigour numbers of these Orchids are as robust as many of the Cattleyas and their beautiful flowers may be enjoyed the whole year round.

Owing to the difficulty of raising the better forms, these plants may always be scarce, but as a few specimens make a remarkable show it is advisable to include some in a collection of Orchids. They present no great difficulty from a cultural point of view, and may be treated as Cattleyas. They grow best suspended in the Cattleya house, in pots of limited dimensions, and in similar compost to that employed for Cattleyas. They grow satisfactorily once they have attained their normal development, and although the Sophronitis parent is usually regarded as a shade-loving plant, these hybrids need a considerable amount of sunshine to consolidate their growth. *J. T. B.*

REMINISCENCES OF TWO FAMOUS NURSERIES.

I was born in the Hertfordshire village of Sawbridgeworth, in the year 1847, and although I have travelled freely up and down the country, my home has always been there. In that year bread was one shilling a loaf, and the quality so bad that it often had to be eaten with a spoon. The Potatos in the district were also badly diseased, so that my parents must have experienced hard times, for I was one of a large family. When I was about twelve years of age I was so impressed with the necessity of doing something to help, that, without informing my parents, I went to Mr. Thomas Rivers' nursery and asked for a job. I was told to come at six o'clock the next morning, and was there at five, waiting for the bell to ring.

It was a fairly hard and rough life, but I liked the work, and being partly in the office and partly in the nursery, I saw all sides of the business, to my lasting advantage. Under Mr. Thomas Rivers I learned a great deal about fruit, for he was a most successful hybridist, and produced new varieties of all kinds, many of which are identified with his name. His reputation was made when he beat the French Plum growers by producing Early Rivers', that ripens a fortnight before Orleans. He informed me that in the first three years he sold 36,000 trees of this Plum. The original tree is still in the Sawbridgeworth nursery.

I remember going round with him to label the trial beds of some new stocks he was experimenting with. They were Broad-leaved Paradise and Nonesuch Paradise, varieties now almost universally used as stocks for dwarf Apples.

Several interesting and valuable plants were sent out by Messrs. Rivers and Son about that time. Among them was that magnificent early Potato, Royal Ashleaf. A country clergyman sent to Mr. Thomas Rivers two Potatos he had raised, one white, the other yellow, and asked his opinion of them. Mr. Rivers thought so much of the yellow sort that after cultivating it, he determined to make a speciality of it. I well remember sealing the original peck bags which were sold for 5s. 6d. each. Even for a fancy variety extravagant prices were not asked in those days. The raiser desired to remain anonymous, and seemed only too pleased that he had produced something useful, but the firm certainly did very well out of it. The variety is nearly finished now, but was kept in the nursery until a few years ago.

I had care of some imported vines we were trying in the open, and I remember that out of the whole batch Mr. Thomas Rivers selected the very one from which I had sampled a half-ripe fruit. It was Gros Colmar, one of the most popular varieties of the present day.

It was about this time that Mr. Thomas Rivers started the Orchard-house system of fruit culture which was peculiarly his own. In the winters of '59-61 the frosts were so severe that every Peach and Nectarine in the nursery was killed, and he determined to grow these fruits under glass. Once he began he found that not only were the trees safe, but the fruits could be had much earlier, which was an enormous advantage. I remember him giving me a camel-hair brush and sending me to pollenate the Peach flowers in his first little forcing house. When those same Peaches were ripe, he sent me with a basket of them, and his compliments to a friend in one of the big houses in the parish. I saw the butler, who gave me a shilling and a glass of beer. I went back to Mr. Rivers' house and told him I had delivered the fruit. He looked hard at me and asked, "What did the butler give you?" "A shilling and a glass of beer!" I replied promptly. "I thought as much," said he; "the best thing you can do is to go straight home and get to bed."

He was raising Peaches and Nectarines at this time, and Victoria Nectarine was one of the first seedlings he put on the market. He had a coloured engraving of it published. He was a very loyal man, and probably had no other thought than complimenting Queen Victoria, but the name was the subject of much comment in the trade, and attracted a lot of attention to the fruit, while all the nurserymen began to name their new productions after royalty.

Thomas Rivers was a fine, tall man, extremely alert and intelligent, and although devoted to his life's work, found time to attend all the shooting parties and functions in the district, for he was very popular in the neighbourhood. He did a good deal for the parish in one way and another: the proceeds of his first book he spent on repairing the church roof.

* * * *

I had been seven years at Messrs. Rivers' when the International Fruit and Flower Show was held at Kensington, and Messrs. J. Veitch and Sons advertised for a clerk. I was one of twenty-five applicants, and was taken on a month's trial. When I told William Perry, Messrs. Rivers' old foreman, that I was going, he asked me how long I had been at Sawbridgeworth, and I said, "Seven years." "Well," said he, "I can honestly say you have not been late seven times." This remark made a great impression on me, and made me so sure that punctuality is one of the most important of business qualities, that I could never bear to be late for any appointment.

Veitch's were tremendously busy, and long before my month was up I was severely tested. The hours were nine a.m. to seven p.m., but there were so many invoices to get out that Mr. Harry Veitch, who was then in the office, said, on one occasion, he would come back after dinner and do them, and asked me to wait for him. He came back at eight, we worked until ten, and I do not think we made one mistake.

Everybody in the nursery stood in awe of James Veitch. He could never bear to be interrupted, and was very angry if disturbed.

I had been at Chelsea two years, when, going home one day on a visit, I saw my old employer, Mr. Thomas Rivers, and he persuaded me to go back to him as chief clerk. I do not think I should have done so, but things were none too prosperous with my parents, and as I had the chance of taking one of my brothers into the office with me, I thought I could be more help at home. Mr. James Veitch was very annoyed about it. "What a fool you are," he said. "Just got your foot on the ladder and going back to bury yourself down there." It is a queer example of the ups and downs of life, that the great Chelsea firm should now be a thing of the past, while the nursery at Sawbridgeworth is still in being.

* * * *

Thomas Rivers was now getting on in years, and his son Francis was really in charge of the place. His brother Harry was also in the office, but was not at all interested in the work. He wanted to be a parson, and if he could get out of doing anything in the business he would, but he was one of the best of men. He took a great fancy to me and often enough, if there was little doing, would lock up the office and carry me off to a circus or anything that happened to be going on in the neighbourhood. Things were very different in those days. Hours were long, but there was not so much bustle and haste which came with the general adoption of telephones and typewriters. Strangely enough, even to this day Messrs. Rivers and Son have managed to do without a telephone in their office. Good men in the nursery earned 15s. a week, and leading hands 18s., but I do not know that they were any worse off than they are to-day.

I married when I was twenty-four, and Thomas Rivers not only gave me a house rent free, but had it done up before I went in. He used to drive about in a pony chaise, and liked to have me with him. Almost every morning the chaise came to the office for me, and although Francis protested against my being taken away from the work, the old man would not be thwarted. "I won't go out at all if he can't come with me," he would say. *W. Camp.*

(To be concluded.)

INDOOR PLANTS.

BOUVARDIAS.

Bouvardias were at one time great favourites and cultivated in most gardens, but they have almost passed out of cultivation, it being very difficult at present to obtain a good, representative collection. Their neglect is to be wondered at considering how popular most plants are that will give a large supply of cut flowers in a short cultural period, and for a supply of cut flowers in quantity there are few plants that afford such an ample supply over a long period as Bouvardias. The plants may be flowered successfully in a temperature ranging from 50° to 65°, and their successful propagation and cultivation presents no more difficulty than the bulk of plants commonly grown in the stove and greenhouse.

Where a stock of plants exist, they should be kept dry at the roots for a few weeks after flowering; no harm will result if they loose all their old leaves and are kept in a lower temperature while they are at rest. From the beginning of February until March they may be lightly pruned and placed in a house having a temperature of 60° to 65°. The plants should then be thoroughly soaked at the roots, and if sprayed over several times a day they will soon start into growth. When the young shoots are from two to three inches in length they should be secured as cuttings, which may be either nodal or internodal, inserted in pots of sandy soil, and the cutting-pots plunged in a warm case furnished with bottom heat of about 70°. They will root quickly and when rooted they should be removed from the cases and stood on the stage near to the roof-glass for a few days. After this treatment they should be placed singly in small sixty-sized pots filled with a light, rich compost.

Bouvardias may also be propagated from root cuttings; the stouter roots should be cut into quite short pieces and the portions dibbled into pots containing sandy soil, allowing the top end of the cutting to just show through the soil. Or they may be placed in pans and covered with a layer of sand. Some of the older cultivators contended that the best plants were obtained from root cuttings, but although I have propagated them by both methods, I have never been able to detect any difference in the ultimate plants, and certainly quicker results are obtained from ordinary cuttings. It is interesting to note that not all varieties come true from root-cuttings, the variety Bridesmaid usually throwing a proportion of Hogarth fl. pl.

The young stock should be kept growing in a temperature of about 60° and potted on as the plants require more root room. Young plants, if well-grown, may be flowered successfully in five-inch pots, but they require care and high feeding, therefore, it is advisable to have them in six-inch pots for flowering. As the season advances and they increase in size they should be accustomed to cooler conditions, and during the summer may be grown in an ordinary greenhouse.

An important point in the successful cultivation of Bouvardias is attention in stopping or pinching the shoots. The young plants should be stopped at the first two leaves; they should afterwards be pinched at every leaf, and thus lay the foundation of good specimens. Stopping should not be done after the middle of August, but this is a matter that must be determined by individual requirements, that is, the time the plants are required to flower.

If it is desired to grow large specimens, the old plants should be dried off, pruned back, and started in heat, as already advised. When starting into growth they should be shaken out and placed in smaller pots than those they previously occupied. At this stage watering must be done very carefully until fresh roots form and are growing freely. Subsequent details of cultivation are the same as advised for the young stock. All the foregoing applies to their cultivation in pots.

Another method of growing Bouvardias is to plant them out of doors or in pits during the summer, and this is undoubtedly the best system, where large plants and quantities of flowers are required. The Bouvardias may be planted out in cold frames or pits from which the lights can be removed, or in the open in well-manured ground. If well-hardened they may be set out of doors during the first weeks of June.

When it is desired to house the plants towards the end of August, the roots should be cut around with a spade a week or so before they are lifted, and given a good soaking with wate rthe day before they are transplanted. They should then be placed in suitable-sized pots, or, if preferred, may be planted in prepared beds in a low pit, this being the best method when they are required to furnish a large supply of cut flowers. They may also be planted in a pit early in the season, and grown under cool conditions all through the summer; in the colder parts of the country this is possibly the best method to adopt. In any case, when lifted from the open and placed in pots, or planted in a bed, the roots should be well-watered in and the plants kept shaded for a few days.

By growing a portion of the stock in cool conditions and having successional batches, Bouvardias may be had in flower for several months. They will flower perfectly in a temperature of about 60°; or they may be flowered in an ordinary greenhouse in which the night temperature does not fall below 45°, although better results are obtained when the mimimum temperature is 50°.

During the growing season Bouvardias respond to liberal feeding; stimulants are essential when the plants are grown in pots. They are subject to attacks of thrips, mealy bug and red spider, but these pests should give little trouble if good, clean cultural methods are followed. They are also very subject to attacks of white fly and Begonia rust; the former may be controlled by the use of hydrocyanic acid gas, or by some other approved remedy, while the occasional use of the sulphur vaporiser will prevent Begonia rust.

There are numbers of fine varieties in cultivation, many of them of American origin; the following sorts include some of the best in their various colours.

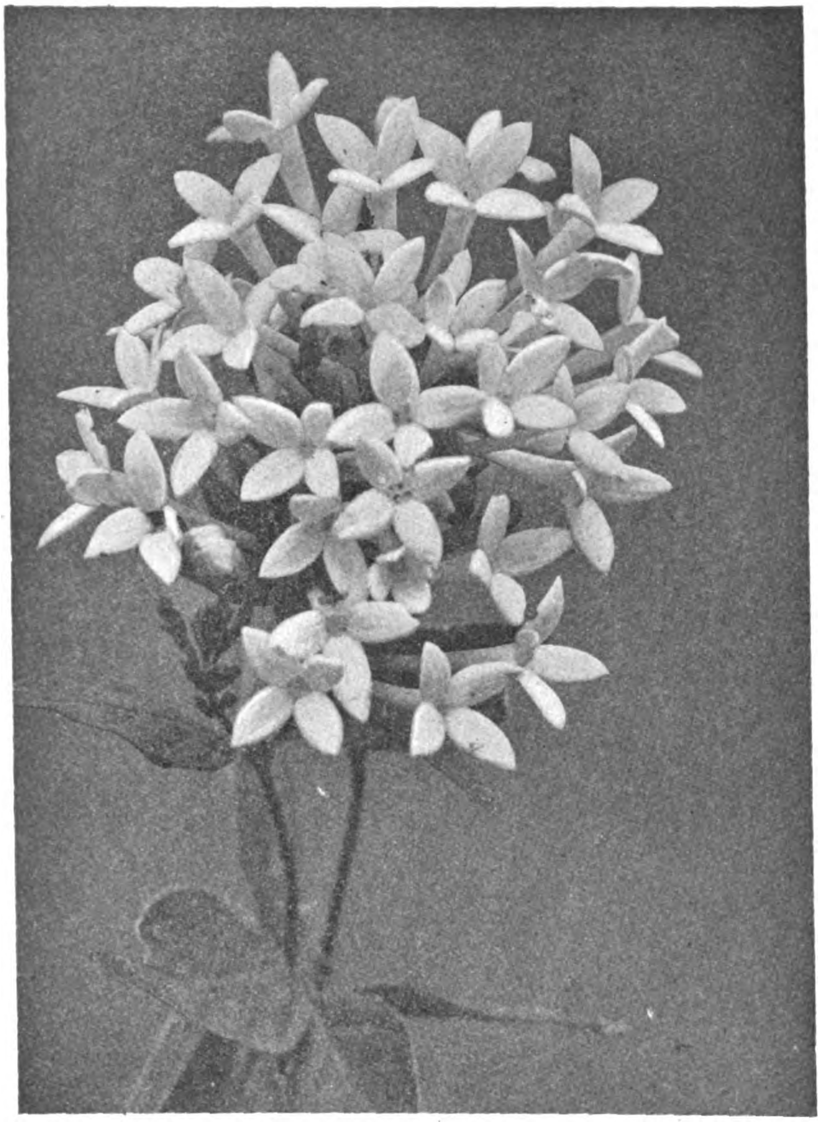


FIG. 125.—BOUVARDIA PRIDE OF BROOKLYN.

B. Humboldtii corymbiflora, with very long, tubular, fragrant flowers, and at one time used for summer bedding in the south; B. jasminiflora, a sweetly-scented species; Pride of Brooklyn (Fig. 125); Vreelandii, a very free-flowering hybrid, also known as Davidsonii; Bridal Wreath, candidissima and Purity, are all single white species and varieties; whilst Alfred Neuner is a fine double white variety, slightly tinged with rose. President Garfield (Fig. 123), has double red-pink flowers, and is a sport from Alfred Neuner. Good scarlet varieties are Dazzler, President Cleveland, a good grower and one of the most useful in this colour; King of the Scarlets and Brilliant, these all having single flowers, whilst Hogarth fl. pl., Sang Lorraine, Triomphe de Nancy and Victor Lemoine are all double red varieties. Some of the best pink or rose varieties are Maiden's Blush, Queen of Roses, Priory Beauty and Mrs. Robert Green.

The species are natives of Mexico, but few, if any, of them are in cultivation at the present day. *J. Coutts.*

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THE GENUS MECONOPSIS.

I.—Distribution, Cultivation and Classification.

THE Himalayan Poppies are enjoying another boom as garden plants, and the following remarks on their classification and cultivation, together with some notes on new species from Tibet, may be of interest both to botanists and cultivators. I shall, however, confine myself mainly to the most popular species already in cultivation, and to those which ought to be, or presently will be, in cultivation.

It may be remarked at the outset that the species of Meconopsis are, with few exceptions, alpine or sub-alpine plants, some of them coming from very high altitudes; indeed, several species reach the utmost limit of flowering plants at a height of over 17,000 feet above sea level, in a land where the snow line stands at 18,000 feet. Arising out of that, as they say elsewhere, two things follow :—

In the first place, high alpines, such as M. horridula and M. brevistyla, which come from the loftiest regions in low altitudes may be at once dismissed as impossible in this country. We do not habitually attempt to grow in England plants which come from below 5,000 feet south of the 30th parallel—at least, not in the open. We rightly suspect them of sub-tropical sympathies. Why then should we waste time trying to grow plants from over 15,000 feet altitude, where the conditions can only be described as subarctic? After all, the climate of Britain is no more subarctic than it is subtropical. The beauty of our climate is that though infinitely varied, it is nowhere extreme; and therefore we can grow a far greater variety of plants in the open than are found in regions with a highly specialised climate.

No specialised plants—the woolly Saussureas for example, or cushion plants, such as Myosotis Hookeri—ever 'do' with us; they are only to be kept alive, if at all, by constant attention, drastic remedies and endless, nerve-racking vigilance; and then the result is not worth the trouble. The few non-specialised plants, such as certain species of Primula and Meconopsis, which thrive equally with the élite at extreme altitudes, at least resemble the specialists in their scorn and hatred of our uncertain English climate.

The second point is this: The genus, as a whole, is more likely to flourish in the north and west of Britain than in the south and east. This may be because of the heavier rainfall in the former districts; watering never seems to have quite the same effect as rainfall. Of course, in the mountains and their own home these plants live in a constant mist-bath throughout the summer, and one is apt to suppose that the comparative dryness of the atmosphere in Britain is a cause of failure. The inference might be correct if the premise were true; but it is not. So far as relative humidity is concerned it is as great in Britain as it is in Tibet. We have no actual figures for Tibet, of course, but in Assam, which is one of the dampest regions in India, the average relative humidity for the year is between 80% and 90%, or just about the same as in England. In Tibet it must be less. That is to say, for any given temperature, the atmosphere is as damp here as it is there. In those parts of Britain where the relative humidity falls sometimes below 80%, as in the eastern counties, for instance, the Poppyworts undoubtedly flag; nor do the colours appear to come so true in a comparatively dry atmosphere.

But, really, we know too little about the conditions under which these alpines grow to dogmatize. What is certain is, that the more rain they get in the summer the better they like it, and the drier they are kept in the winter the more they flourish.

Distribution.

Nearly fifty species of Meconopsis are known, and 95% of them come from the Himalaya, and Western China, from that continuously mountainous region which we may conveniently call Sino-Himalaya. This special area lies almost entirely between the Indus and the Yellow River on the one hand, and between the Himalaya and the Kuen Lun on the other; or, more exactly it stretches from the 70th to the 105th meridian, and from the 27th to the 37th parallel of latitude. Outside this area the genus is represented in only two localities—in Britain by M. cambrica, in North America by M. heterophylla and M. crassifolia.

This distribution is just sufficiently perverse to be rather unintelligible; for the fact that there are no species in Japan, or, at any rate, in the Alps or Carpathians, is curious, as is the presence of a species in California and the absence of species in the Rocky Mountains.

Circumstances point to Tibet as the home of the genus, which appears to have overflowed the passes to west, south and east, gathering strength the while; and though no one species now has a very wide range (M. Wallichii and M. horridula appear to have the widest) we find species in Kashmir which have their counterpart in Western China, with perhaps an intermediate species in the Himalaya proper, halfway between. The 'Aggregates' themselves are fairly distributed. As might be expected, the outlying species in California and Europe have no counterpart in the Asiatic region; but the Asiatic 'aggregates' are fairly evenly divided between the Himalaya and China.

Aggregate 'Cumminsia' belongs to the alpine Indo-Malayan flora, being found only in regions of perpetual precipitation, divided between five months rain and seven months snow.

Aggregate 'Decorae' is founded on a single species from the same general area.

Aggregate 'Aculeatae' is distributed throughout Sino-Himalaya, from Kashmir to Szechuan, and from Sikkim to Tibet.

Aggregate 'Primulinae' has much the same distribution, but does not extend so far west as Kashmir.

Aggregate 'Bellae' has a considerable east to west extension through one species, M. impedita, while M. bella itself is confined to Sikkim and Nepal; it is in fact the only Himalayan species of this 'aggregate' other than M. impedita. The three remaining species are confined to north-west Yunnan.

Aggregate 'Integrifoliae' is spread over the whole of Western China and the eastern parts of Tibet, north of the Himalaya; and the same applies to the blue-flowered group, 'Grandes,' though their distribution is even wider, as they are found also in the Himalaya.

The 'Torquatae' are more restricted, only two Himalayan species being known. While the 'Robustae' are distributed from end to end of Sino-Himalaya through one species, M. Wallichii (the other species being confined to a comparatively small area).

The 'Surperbae' are similarly distributed by having one species in Western China, one in Tibet, and one in Bhutan.

Finally, the 'Chelidonifoliae' are confined to Western China, with two species.

It seems highly probable that many species of Meconopsis yet remain to be found.

Cultivation.

Most of the species are biennial, which is a disadvantage, unless, as in some cases, they come easily from self-sown seeds; a few are perennial, and still fewer annual.

They are easily raised from seeds—which, by the way, do not keep well—in any light compost, in a cool house, but should be planted out, so soon as possible, preferably not in frames. The plants do well in almost any non-calcareous light, well-drained soil; the important thing to remember is that they must have plenty of depth for the tap root. It is not generally realised what a great depth is required, but it may safely be said that nothing less than three clear feet is of much use; I have collected specimens of the 'Aculatea' type with roots three times as long as the portion above ground.

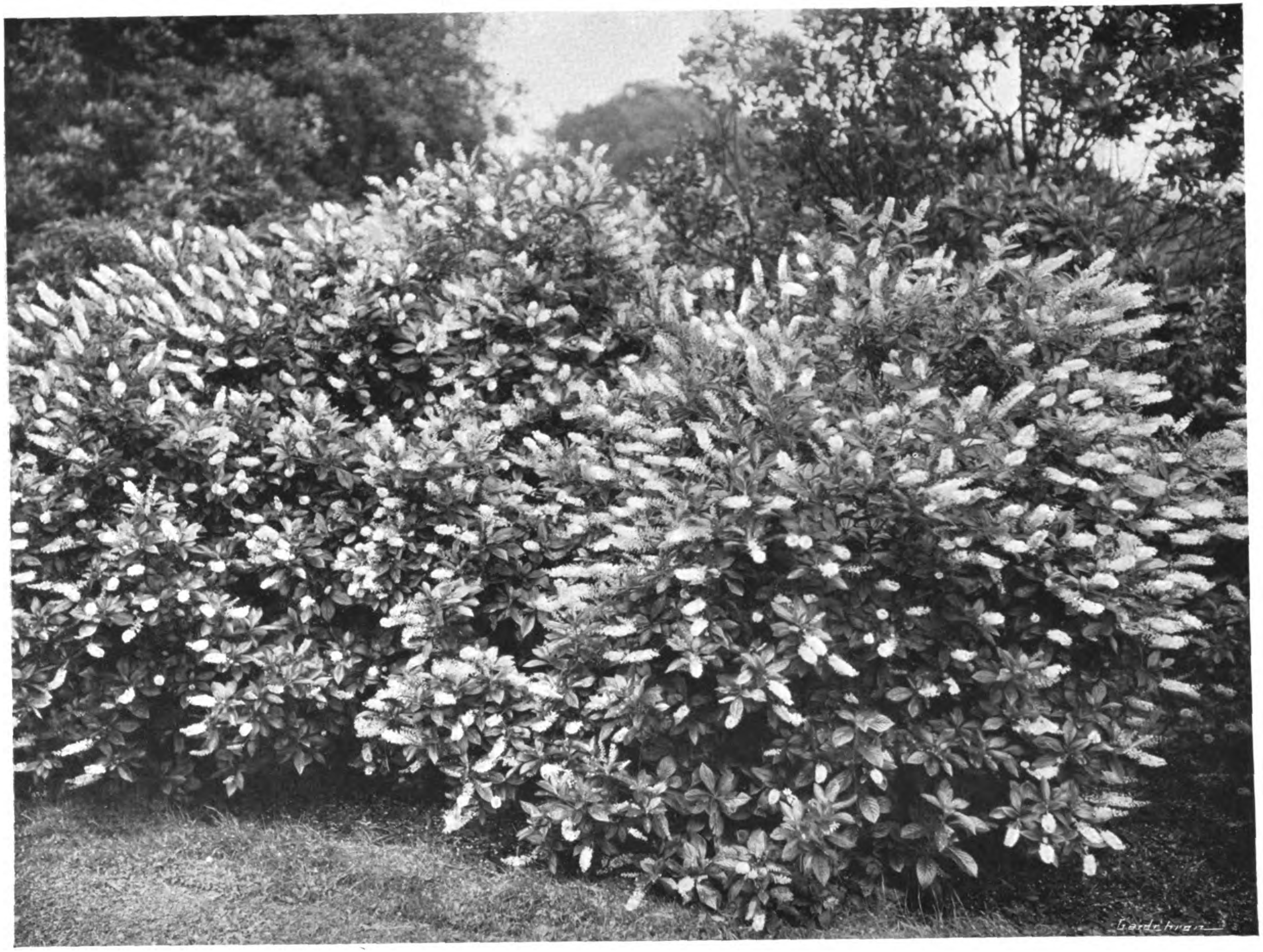
If the conditions under which they are found in nature is any sure guide (as one fondly supposes it is) the chief need is perfect drainage and underground moisture. Many species grow on screes, where these conditions are extreme—that is to say, perfect drainage, surface dryness, and ample underground moisture; the depth at which this lies, however, and the insecurity of tenure on the moving scree demand a very long tap root.

It is usual to grow the Meconopsis in the rock garden. The consequence is they find themselves in very mixed company, usually in a rich soil of insufficient depth. Result—the tap root is unable to go down easily, and gets stunted and waterlogged.

Cultivators in this country who have not seen these plants growing wild (unfortunately there are none in the European Alps) would be astonished at the conditions under which they often grow and thrive, in nature: the stark, barren screes, just so much unlimited hungry gravel and shingle, without apparently, a shred of humus in it; water 'laid on' day and night for weeks, and when the sun does come out the incandescent heat, light and power they have to face! All this they withstand, unblenchingly, and flourish. If they have a fault, it is that the flowers are rather fugitive, and get badly knocked about in the wind and rain: but many of them flower so freely that they remain in bloom for several weeks, a new flower opening for every one which falls. Wherefore I cannot too strongly urge three feet—better four—of almost pure sandy gravel in which these plants can firmly anchor themselves, with humus below that. Underground watering is more difficult to arrange, though if it can be done, there is no question that we should succeed better. The so-called moraine—a modern misnomer—is just the place for them.

Some of the most easily grown species are M. Prattii, M. latifolia, M. pseudo-integrifolia, M. Wallichii, M. simplicifolia, and M. paniculata. These have all been in cultivation for some little time, and their requirements have been fairly well ascertained. They are all fine plants, and are a magnificent sight when clumps of them are judiciously mixed in the rock garden. Although they are all biennial most of them, under favourable conditions, come easily from self-sown seeds. Also they may all be obtained without much difficulty. To these might be added M. Baileyi and M. Florindae, of the new species, as likely to give little trouble. They are certainly well-worth growing, if they can be

Supplement to the GARDENERS' CHRONICLE.



CLETHRA ALNIFOLIA.

secured, and in a year or two will no doubt be on the market in bulk.

Classification.

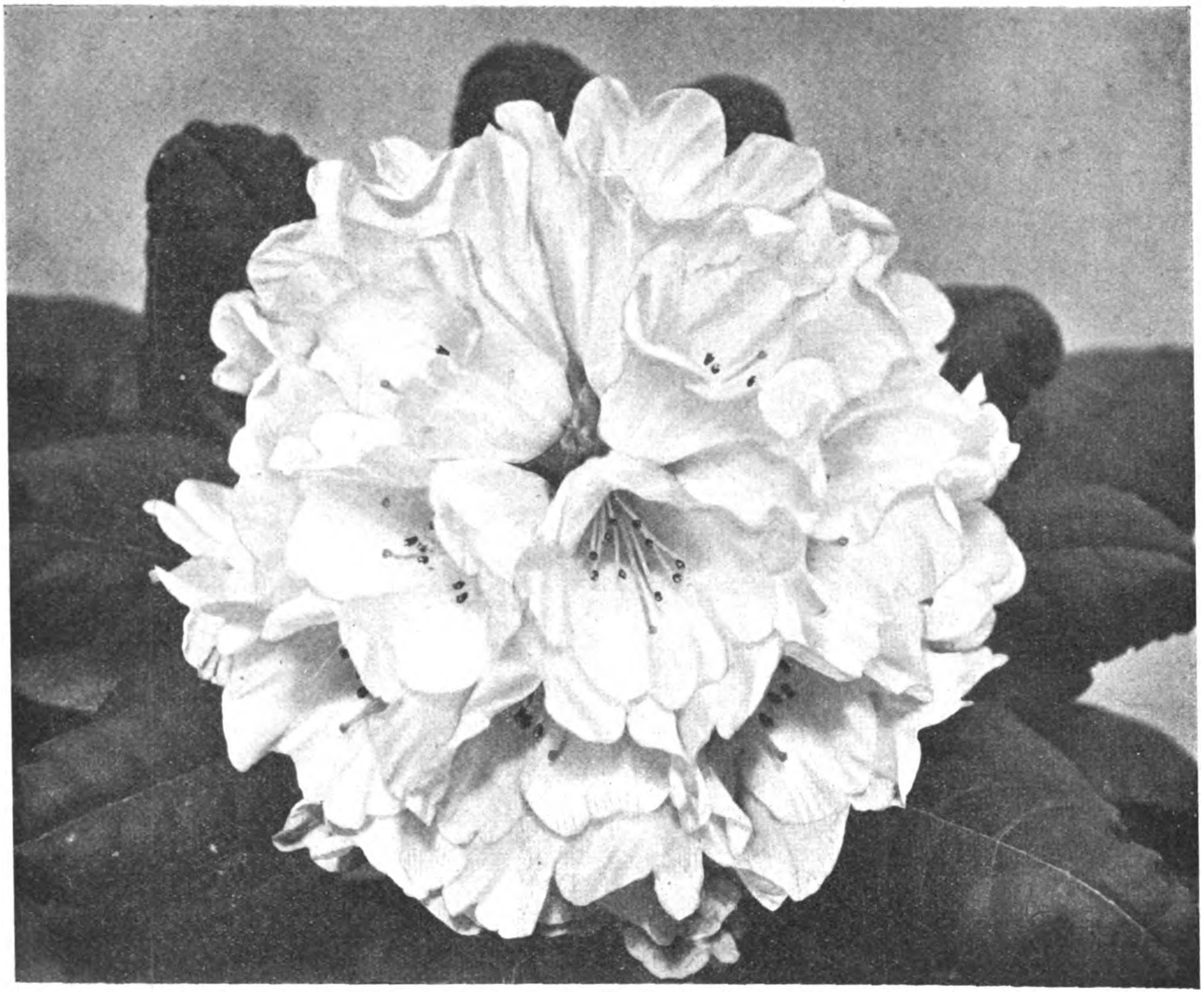


FIG. 126.—RHODODENDRON LACTEUM.

R.H.S. First Class Certificate, March 23. Flowers pale lemon-yellow.
Shown by A. M. Williams, Esq., Launceston (see page 240).

The division of the genus by Sir David Prain into two sub-sections—Eumeconopsis, plants with simple hairs, setae, or prickles; and Polychaetia, plants more or less covered with barbellate hairs, holds the field. It may be artificial, but it is certainly workable. Beyond that point it begins to get difficult. Certain well-defined groups such as the 'Aculeatae' or prickly Poppies *par excellence*, can be recognised at sight, though even these show intermediate forms; but how to distinguish between the 'Bellae' and the 'Primulinae' for example, is not so simple.

Sir David Prain groups the species into eleven 'aggregates' as he calls them. Characters used in the sub-division of the sections are:—habit, inflorescence, flower colour (broadly, whether belonging to the yellow-flowered group or to the blue-purple-flowered group), number of petals, and so on. Diagnostic marks of specific value are:—shape of leaf, colour of anthers, style, and stigma, relative length of style, shape of capsule and method of dehiscence, flower colour, and so on, as in any other large genus. These are points which collectors should note carefully in the field, since they are not easily observed in herbarium specimens.

I have suggested certain alterations in the classification which bring the number of 'aggregates' up to thirteen. Taking Sir David Prain's classification as it stands,[*] the proposed changes may be tabulated as follow:—

(1) Removal of M. betonicifolia from 'Cumminsia.' This is necessary because M. betonicifolia has barbellate, not simple, hairs. In this connection it may be pointed out that we know nothing about the development of these barbellate hairs, and it appears that the so-called 'Polychaetia' are not always entirely covered with them. They may be absent from the stem, the leaf, or the ovary, for example, at least in the young stage. Unless, therefore, one has ample material of the adult plant, it is sometimes impossible to say whether it belongs to the section 'Polychaetia' or not, at least in herbarium specimens.

(2) Removal of M. Baileyi from 'Primulinae' This also is necessary, because M. Baileyi, like M. betonicifolia, which it resembles in other respects, has barbellate hairs.

(3) Removal of M. superba from 'Robustae,' and recasting of these three closely allied species, M. superba, M. betonicifolia, and M. Baileyi, into a separate aggregate, which may be called 'Superbae.' This is a matter of convenience. There can, I think, be no question of the near relationship of the above three species; and M. superba is much more like the other two than it is like the remaining members of the 'Robustae' aggregate, M. paniculata, M. robusta and M. Wallichii. The only alternative would be to enlarge the 'Robustae' aggregate so as to include M. betonicifolia and M. Baileyi.

(4) Division of the 'Grandes' aggregate into two, a yellow-flowered group with compound scapes, and a blue-purple-flowered group with simple scapes. The latter would retain the name 'Grandes,' while the former may be called 'Integrifoliae.' This also is a matter of convenience. There can be no doubt, however that what we now require is more light on the distribution and development of these barbed hairs on the 'Polychaetia'; it may well be that therein lies a further basis for classification.

F. Kingdon Ward.

(*To be continued.*)

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[*] *Kew Bulletin*, 1915.

FASHION IN GARDENING ON THE RIVIERA.

The very word "fashion" indicates absence of individual taste and the creative spirit. Fashion is the very negation of aesthetic taste, and the lowest and most stupid form in which it is manifested is the utter absence of critical power, indeed, it is the most vulgar form of the gregarious tendency of humanity.

When fashion manifests itself in the way of dressing, and the yearly changes depend on the fancies of tailors, who are guided only by commercial interest, then—apart from the useless expense incurred—the moral tyranny of this commercialism is one of the saddest facts of our social conditions which one can contemplate.

I hope that in the not too distant future personal dignity will be preserved and nobody will feel obliged to follow like sheep the dictates of persons utterly incompetent as regards aesthetic and artistic questions. Then and not until then shall we have a picturesque variety in clothing which will allow freedom from this lowest form of slavery.

These preliminary remarks may appear out of place in a gardening periodical, but they are necessary to enable English visitors to understand the aspect of new gardens on the Riviera, and they are numerous, because the Riviera is perhaps, of all parts of the world, the area which is increasing most rapidly in population, and sad to state, many older gardens are being moulded according to the prevailing fashion.

Very justly, the so-called English, or natural, style in gardening, that is, the imitation of the most beautiful scenes of free Nature, had become universally recognised as the only rational and therefore truly aesthetic style of gardening, allowing an infinite possibility of exercising what talent a garden owner might possess. Thus, in the English style of gardening, all those fashions that are degrading to human dignity are excluded, and personal liberty is respected.

Some years ago the horrible fashion of topiary gardening became a mania on the Riviera, and one may see everywhere trees and shrubs contorted into artificial shapes, as columns, walls, even animal forms, and planted in straight lines as geometrically exact as possible—the very negation of natural beauty, and, besides, requiring an extraordinary amount of work to keep them in those ugly, artificial shapes, which Nature incessantly tries to destroy.

The Riviera is the European spot furthest from the equatorial zone where one may constitute gardens of quite tropical aspect, containing—as I have shown in numerous articles, and which any visitor to my garden may discover—types of all the characteristic forms of the splendid and wonderfully beautiful vegetation of the tropical forests. Unfortuantely, I have seen old and beautiful Palms and other such highly ornamental plants, cut down to make way for common Yew, Cypress, Laurel, Box, and similar subjects, which will grow almost anywhere in Europe, and which do not need the exceptionally mild climate of the Riviera—and which, alas! are trimmed in the way indicated.

But this is not all, because to such vandalism is now added a new horror, namely, the so-called *style provençal*, which is the ugliest style of gardening ever invented, and the horror is augmented by the ugly *provençal* style of building.

Everywhere on the Riviera one now sees clumsy pillars carrying a kind of heavy, ungraceful scaffolding, all painted in the most vulgar, blatant colours, yellow, red and green, and the houses constructed and painted in the same way. Here and there are planted some Cypresses in the open ground, but most plants, although quite hardy, are planted in big, clumsy and ugly clay-vases of a "screaming" red colour, placed at regular intervals along the paths, which are quite straight, without any of those graceful curves which constitute one of the charms of the English or natural style of gardening. Of course, the development of these hardy plants, Nerium Oleander, for instance, in boxes or vases, is insignificant compared with what it is when they are planted in the open ground—but this does not matter—fashion is tyrannical and must be obeyed!

It is now some thirty-five years ago since I came to live here, and I have continually advocated the creation of magnificent tropical scenes, thus allowing persons to contemplate in a few hours journey from the capitals of Europe what they would otherwise have to travel thousands of miles to see! I have introduced many new, tropical-looking plants here, and have advised others to plant them so as to give as great variety to the Riviera gardens as possible, and I have also tried to make gardeners appreciate the many excellent exotic fruits which can be cultivated here with success.

It is heart-breaking to see what havoc foolish obedience to stupid and ugly fashion can work in a few years—and this is the reason why I commenced this article with a violent attack on fashion! *Dr. Axel Robertson Proschowsky, Jardin d'Acclimatation, Les Tropiques, Chemin des Gottes, Fabron, Nice.*

FLOWER GARDEN.

A COLOUR SCHEME IN BLUE AND YELLOW.

An arresting and showy display of summer-flowering plants may be created by a scheme combining dark blue and orange or yellow.

The brilliant colourings of the latter form a splendid foil for the somewhat sombre hues of the former, whilst both seem to be intensified by close association. Tagetes erecta (African Marigold), growing two-and-a-half to three feet, with large heads of orange bloom, carpeted with the floriferous Verbena venosa, gives a glorious display.

A bed of Tagetes signata pumila (single French Marigold), planted with dark blue Victoria Asters, is a wealth of colour in late summer and autumn, whilst the oft used and abused Calceolaria amplexicaulis Golden Gem or Prince of Orange is not to be despised in combination with blue Ageratum or blue Violas.

The cultivation of the plants enumerated presents no difficulty, as they are easily raised from seeds sown in gentle heat in spring, though better results are obtained with the Calceolaria from autumn cuttings wintered in a frame. Other plants in a wide range of subjects will readily suggest themselves as suitable for a colour scheme of this kind *E. J. Bryant, Brislington House Gardens, Nr. Bristol.*

MIGNONETTE.

It is better to sow a good breadth of Mignonette on a prepared bed than to rely on clumps distributed about the mixed flower borders. The loose soil of the latter is not the best rooting medium for this fragrant-flowered plant.

A position should be selected before the winter has far advanced, and the ground dug in readiness for the spring sowing. Add a little well-rotted farmyard manure to the bottom of each trench, and leave the surface rough. Unless the soil is known to contain a sufficiency of lime, a liberal dressing of this material may be given when the digging is completed. Very firm soil is essential to complete success, and the ground should be consolidated by treading it thoroughly just before the seeds are sown. Before doing this, however, a heavy dusting of bone-flour and of wood-ash from the garden bonfire should be scattered on the surface and raked in.

The end of March, or early April, is a good time to sow the seeds, where the plants are to flower, as Mignonette is a subject which objects to root disturbance. The seeds may be either sown broadcast and raked in, or shallow drills may be drawn at twelve-inch intervals, and the seeds deposited in groups of three or four, at about one foot apart. The latter method is perhaps the best, as it ensures a more even distribution of the seeds and consequently a better balanced bed. Each plant may be allowed a square foot of space, and the flowering season will be much longer than if they are not crowded.

If the old flower spikes are removed as they begin to fade, side shoots will continue to develop and provide material for cutting.

Mignonette is lacking in brilliant colour, but on account of its rich perfume it is indispensable in the flower garden. If a brighter effect is desired, a contrast may be provided by sowing a breadth of Nigella Miss Jekyll immediately behind the Mignonette. For the Nigella the same details of cultivation may be followed as recommended for Mignonette, with the exception of the heavy treading of the soil before seed sowing. *Charles Hodgson, Acton Place Gardens, Sudbury, Suffolk.*

SCROPHULARIA NODOSA VARIEGATA.

The variegated form of this native British herb is an ornamental-foliaged summer-bedding subject, particularly suitable for planting in cold, wind-swept places or in urban gardens where the atmospheric conditions are not favourable for the successful cultivation of less vigorous subjects.

Stiff and compact in habit, the fistular, angular stems of S. n. variegata are clothed with deep green foliage, broadly margined with white. It has been effectively employed as an edging to beds and borders planted with Dahlia Coltness Gem, with which plant it approximates in height and bulk. It may, however, by pinching, be kept much dwarfer. The flowers are dull and inconspicuous and should be removed so soon as they appear. *Fred. W. Jeffery.*

HARDY FLOWER BORDER

KITAIBELIA LINDEMUTHII.

Kitaibelia vitifolia is a native of Eastern Europe and a member of the Mallow family. It is not an exceptionally choice plant, the white flowers being small for the size of the large, downy, Fig-like leaves, and strong, bushy growth up to six feet, and as much in diameter. Still, it is a hardy, robust plant, useful for the wilder parts of the garden or for filling an unsightly corner. There is, however, a derivitive of this species which one occasionally sees in catalogues under the above name, and this plant should appeal both to lovers of the curious and variegated foliage.

K. Lindemuthii is one of those uncommon plants known as graft hybrids, and it is said to have been produced by grafting the variegated Abutilon Thompsonii on to Kitaibelia vitifolia. This having been achieved by Professor Lindemuth, the scion died, but from the Kitaibelia stock there arose a shoot which, strangely enough, had acquired the yellow mottling of the leaves of the Abutilon. Thus appeared K. Lindemuthii, a graft offspring of a shrub and an herbaceous species, inheriting some of the characters of both "parents." This oddity is quite hardy and easily grown. Its flowers are white, like those of the typical Kitaibelia, and the handsome, lobed leaves are also similar save for the variegations referred to.

GERANIUM MALVAEFLORUM.

Among the more uncommon Geraniums, G. malvaeflorum (syn. atlanticum) is an interesting species. At this season it presents a dense carpet of leafage, very much like that of E. grandiflorum, but only four inches to six inches in height, the round, peltate leaves being a pale green and deeply cut at the margins. In April or May the flowers are borne on ten-inch stalks, the corollas being bowl-shaped and of a rich violet-purple. Soon after this, *i.e.*, in early summer, the leaves die down entirely, but others appear with the first rains of autumn.

G. atlanticum does not bloom well with me, the probable reason being that it does not get sufficiently dried off in summer, for I have observed that it blossoms with comparative freedom in the spring after a hot and dry season from July onwards. It is said to do better if covered by a handlight from June to September, when a good mulch of old manure is given. This plant is, furthermore, a subject, which takes time to become established. Planting should not be done later than mid-September. It is quite hardy. *J.*

THE ORDER OF FLOWERING AND FERTILISATION OF HARDY FRUITS.*

THE results of many observations and experiments on the interesting subject of pollenation of fruits seem to be as follow :—

COB NUTS AND WALNUTS are entirely dependent on wind to carry their pollen, but they will not mature nuts without pollenation. Although these nuts are perfectly self-fruitful, there is advantage in having two or more varieties, because one variety may not produce many catkins, or it may not shed its pollen at the very best period, while another may be a better pollen producer or lengthen the period of pollenation; for example, an occasional Cosford Cob (which bears many catkins) may help pollenate a plantation of Kentish Cob, while a hard-shelled Walnut and a soft-shelled Walnut near one another will probably each fruit better than an isolated Walnut tree.

STRAWBERRIES set their fruits satisfactorily with pollen carried by the breeze, especially if the weather is sunny. Strawberries do not seem to be as dependent on insect visitors for their fertilisation as are the other fruits, nor do they appear to be visited so much by insects.

RASPBERRIES AND LOGANBERRIES are dependent on insects for the best production of fruit, and if insects are excluded the fruits are smaller and less perfect in shape. Hive bees are specially fond of Raspberry blossoms.

GOOSEBERRIES, RED AND BLACK CURRANTS. The pollens of these fruits are globular and sticky, like boiled sago in miniature. In these fruits it is essential that the pollen be transported from the anthers to the stigmas by insects.

All varieties of the Strawberry, Raspberry, Gooseberry and Currant seem to be perfectly self-fruitful, *i.e.*, mature fruit perfectly if pollenated by the same variety; so it is uncertain whether anything is gained by mixing varieties, although it is possible more fruit may result by so doing.

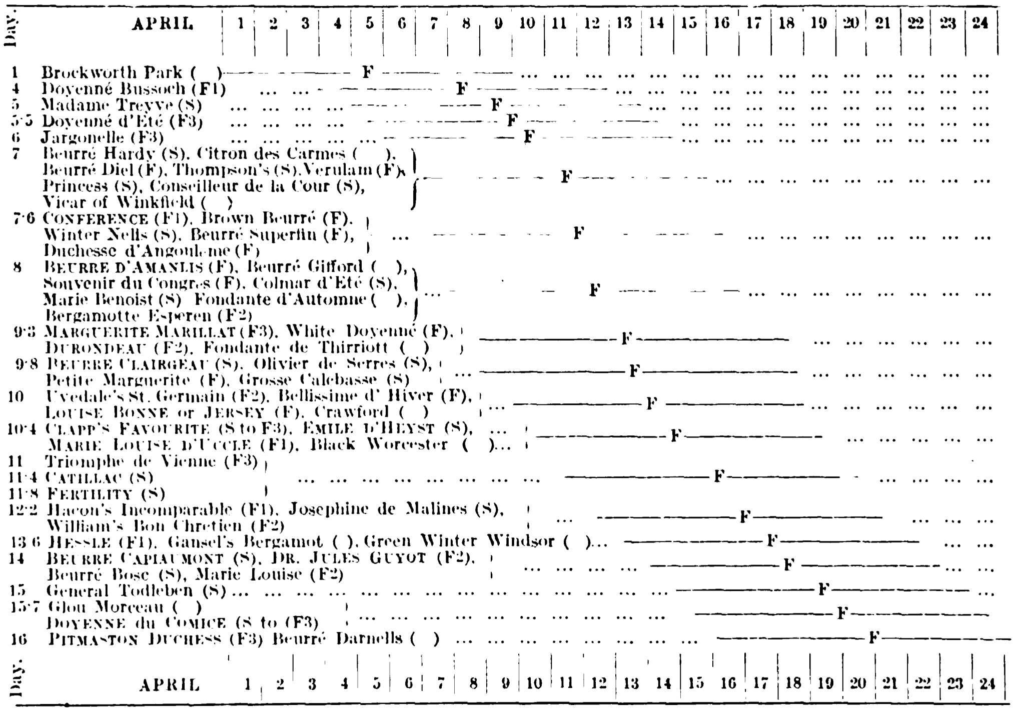
FRUIT TREES.

The different varieties of a kind of fruit (Apple for example) generally flower in a fairly definite order, varying a little with season, etc.; the varieties may be classified into those which generally flower early, at mid-season or late. In the fruit trees referred to in the following notes it has been proved that very little fertilisation is due to wind carrying the pollen, and that the transfer of pollen is practically entirely due to insects.

THE PEACH follows very soon after the Almond in commencing to blossom; it flowers so early that few insects are on the wing. Most varieties, if not all, are perfectly self-fruitful, but the flowers need the transfer of pollen from anthers to stigmas. It is advisable to hand-pollenate the flowers out of doors with a camel-hair brush or with a rabbit's tail placed on a short stick, as is done with Peach blossoms under glass. To prevent leaf-curl spray the trees with lime sulphur shortly before the buds begin to swell.

SELF-FRUITFULNESS AND SELF-STERILITY.

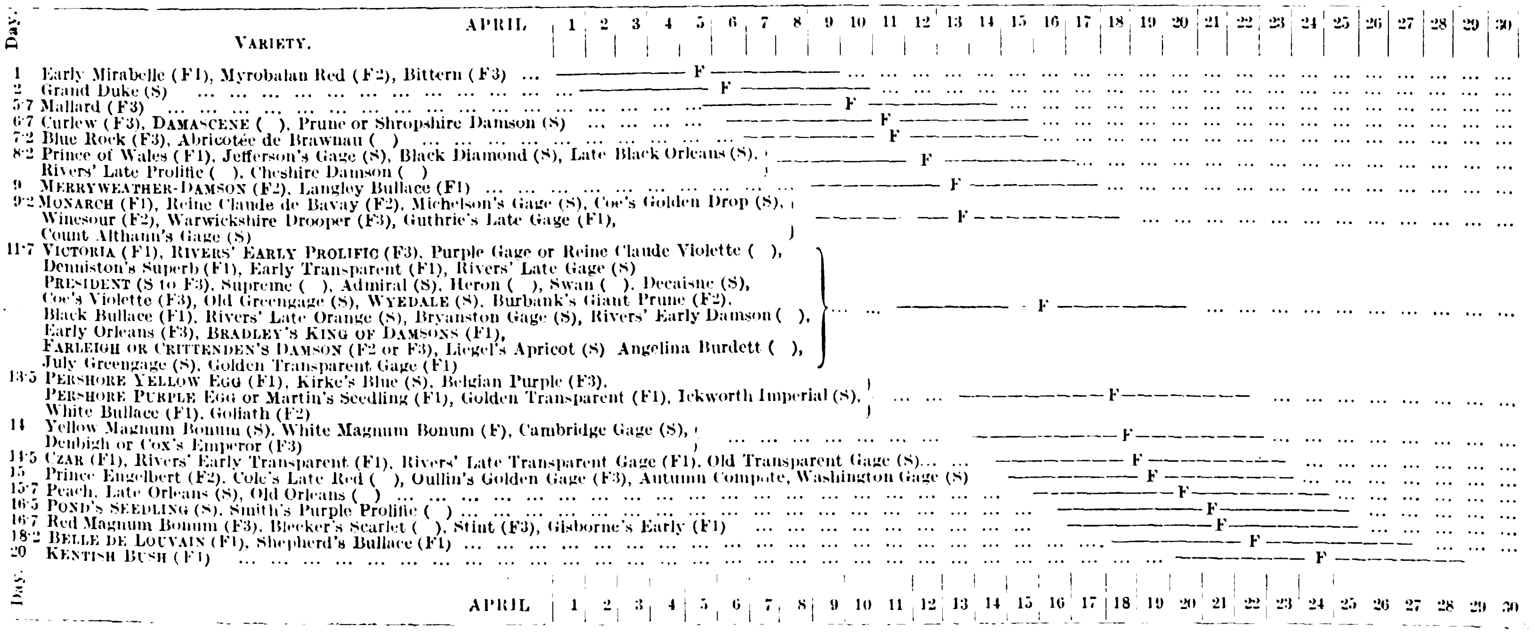
In Apples, Pears, Plums and Cherries many varieties are self-sterile, *i.e.*, will not mature fruit with pollen of the same variety. It is therefore advisable to have two or more sorts in a garden or orchard (unless there are other varieties near), also to note the time of flowering in order to avoid planting alone a very early-flowering with a late-flowering



APPROXIMATE AVERAGE ORDER OF FLOWERING OF PEARS.

(Based on observations made in the Royal Horticultural Society's Gardens by Mr. F. J. Chittenden).

NOTES: Names in large type indicate varieties mentioned by the Ministry of Agriculture as suitable for cultivation for market. F (in cross lines) =period of full bloom S, self-sterile; F, self-fruitful; F1, somewhat self-fruitful; F2, slightly self-fruitful; F3, occasionally, but rarely self-fruitful; ( ) not tested as to whether the variety will mature fruit if pollenated with its own pollen; based on pollenation trials at Wisley, Surrey, and Wye, Kent. The duration of flowering of Pears is about 13 to 24 days in Kent, the average being 18 days and the full flowering period of a variety is from the 4th to the 11th day; 9 days may be taken as the effective flowering period for cross-pollenation.



APPROXIMATE AVERAGE ORDER OF FLOWERING OF PLUMS.

NOTES:—Names in large type indicate varieties mentioned by the Ministry of Agriculture as standard commercial sorts. The order of flowering is based on a twenty-one years' record at the Worcestershire County Council Experiment Garden, Droitwich, by Mr. James Udale; from the record at Sawbridgeworth, Hertfordshire, by Mr. R. H. Rivers; at R.H.S. Gardens, Wisley, Surrey, by Mr. A. N. Rawes; and at Wye, Kent, by Mr. C. H. Hooper. The average length of time from the first flowers to the fall of the petals is 12 to 24 days, according to variety and season. F = full flower, about the 6th or 8th day after the first flowers appear. The effective pollenation period is about 9 days. The tests for self-fruitfulness are taken from results at John Innes Horticultural Institute; R.H.S. Gardens, Wisley; and Wye, Kent. S, self-sterile; F1, strongly self-fruitful; F2, somewhat self-fruitful; F3, occasionally self-fruitful, say one flower in 100 or 1,000.

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*The substance of this article was given by me as a lantern lecture at Southampton on Sept. 1, 1925, before the British Association for the Advancement of Science. *C. H. Hooper. F.L.S.*

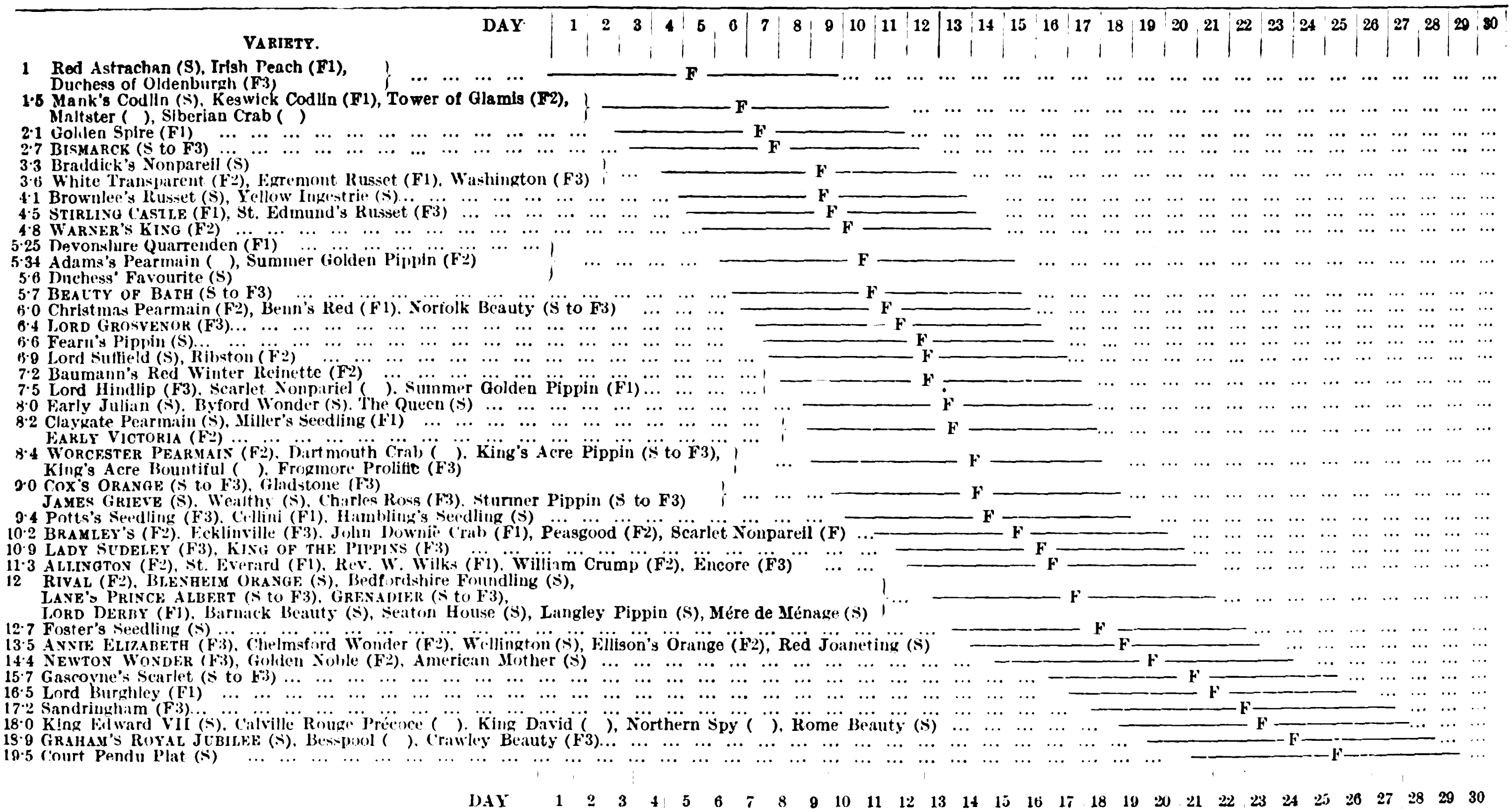
sort; if a mid season flowering variety were added it would probably fertilise both varieties; but another early-flowering and another late-flowering kind might give an even better result.

In general, a self-sterile variety is capable of maturing fruit with pollen of any other variety; among Plums there are a few inter-sterile varieties, and among Cherries several of the most useful sorts are inter-sterile.

The question as to whether there is preference in pollen is of importance and needs much experiment in the open (as well as under glass).

Suitable combination of varieties, together with situation, etc., may account for "lucky orchards" in which the crops are good and regular.

In America, trials have been made on a very large scale in Apple orchards, and it is shown that whilst the cross-pollenation of some varieties is, year by year, very fruitful, the combination of two other varieties may only produc a small crop.



APPROXIMATE AVERAGE ORDER OF FLOWERING OF APPLES.

NOTES:—Names in large type indicate varieties referred to by the Ministry of Agriculture as suitable for cultivation for market. The average length of time from the opening of the first flowers to the fall of the petals is 12 to 22 days, according to variety and season. F = full flower; S, self-sterile; F1, somewhat self-fruitful; F2, slightly self-fruitful; F3, occasionally but rarely self-fruitful; S to F3, rarely self-fruitful. From tests made at R.H.S. gardens, Wisley, John Innes Horticultural Institute, and Wye, Kent.

PEARS.

(See table, p. 255.)

Few Pears are strongly self-fruitful; perhaps the most self-fruitful variety is Conference, which seems to be also a very good variety for pollenating other varieties. Some varieties are shy bearers; at Chilham, a tree of Doyenné du Comice, which persistently failed to fruit was induced to bear by being partly grafted with Fertility. At Swanley, I planted forty-eight Pitmaston Duchess Pears at a distance from any other Pears; they did not fruit. After three years they were taken up and planted among other varieties, a hive of bees was also placed among them and they cropped regularly. In every Pear plantation more fruit will be obtained if several varieties are planted together.

PLUMS.

(See table, p. 255.)

Of the forty-five Plums, of which the approximate order of blossoming is given in the table, about half are absolutely self-sterile, about a quarter mature an occasional fruit with their own pollen, whilst many of the remaining quarter are strongly self-fruitful; these latter include:—Pershore Yellow Egg, Pershore Purple Egg (Martin's Seedling), Victoria, Czar, Denniston's Superb, Monarch, Kentish Bush, Shepherd's Bullace and Belle de Louvain. The only Plum that seems to crop heavily when planted alone is the Pershore Yellow Egg grown in Worcestershire; all the rest crop better when planted near another variety. In some places large blocks of certain Plums have been planted alone, and the question is what to re-graft or interplant in order to get better crops; the following recommendations are made, based on experience and pollenation trials:—

FOR.	RE-GRAFT OR PLANT AMONG THEM.
Rivers' Early Prolific ...	Prince of Wales, Admiral.
Monarch	Rivers' Early Prolific, Prince of Wales.
Pond's Seedling ...	Czar, Belle de Louvain.
Belle de Louvain ...	Czar, Kentish Bush.

Other good varieties to plant with Rivers' Early Prolific appear to be Early Orleans, Czar and Pershore Yellow Egg.

Some varieties are very shy bearers, and it is certainly not advisable to plant them for market; such are Coe's Golden Drop and the Greengages; Pond's Seedling or Rivers' Early Prolific are recommended to plant with the former, and for the latter, Pond's Seedling, Czar, Early Orleans or Pershore Yellow Egg.

The Bullaces and most of the Damsons are fairly self-fruitful and pollenate other Plums well, if in flower at the same time.

APPLES.

(See table above.)

In Apples, of the varieties commonly grown, about one-third are absolutely self-sterile or are for practical purposes self-sterile. A few Apples, such as Stirling Castle, Rev. W. Wilks, Lord Derby, Irish Peach, Christmas Pearmain and Golden Spire are self-fruitful to a considerable extent, but no variety can be safely relied upon as being sufficiently self-fruitful to plant alone in an orchard, if the best results are desired.

The following experiment gives an idea of the importance of insect visitors and of cross pollenation in the case of Apples:—

Sixty varieties of Apples were experimented with—

(1) In the trials in which insects were excluded from the blossoms only two varieties matured fruit.

(2) In the trials in which each variety was pollenated with pollen of the same variety eleven varieties matured fruit.

(3) In the trials in which each variety was cross-pollenated with a pollen of a different variety, forty-eight varieties matured fruit; somewhat similar results were obtained in the cases of Pears and Cherries. Certain varieties seem to be more particular as to pollen in the production of fruit than are others; some varieties produce much pollen, others produce very little. I think Cox's Orange Pippin crops better with some pollens than with others. I have found Worcester Pearmain, Beauty of Bath, King of the Pippins, Duchess' Favourite, Allington, James Grieve and Bramley's Seedling good pollenisers for this variety. Cox's Orange Pippin is itself a good polleniser for other varieties.

Beauty of Bath appears to crop especially well with Allington Pippin, Devonshire Quarrenden, Cox's Orange Pippin, and Lane's Prince Albert.

Blenheim Pippin and Newton Wonder appear to crop well planted together, and I have seen a splendid crop in one orchard thus planted near Pershore in Worcestershire, although Newton Wonder produces only a small quantity of pollen. *Cecil H. Hooper, F.L.S., Agricultural College, Wye.*

(To be continued.)

ROTATION OF CROPS.

The chemical theory of rotation teaches that different crops remove from the soil certain substances that are associated with its fertility, and the rotation is intended to vary the removals and thus give the soil time to recover from the partial exhaustion last endured. But a study of pests and diseases enlarges the basis and gives even greater force to the arguments commonly used in support of the practice of rotation, for by continuing to grow the same crop on a certain plot of land for several years in succession we carry food to the enemy, whereas by changing the crop we deprive it of food, and may succeed in starving it out entirely on that particular plot.

Farmers generally give greater attention to the matter than gardeners, but it must be admitted that they have the greater need and a better opportunity. The farmer is frequently under compulsion in some degree because the nature of the rotation is prescribed in his lease, and the law aids the landlord in restricting the farmer's liberty, but apart from all compulsions farms and gardens are very differently related in the matter. A farmer is bound in his own interest to grow only those crops which the land is adapted for, since the broad principle of adaptiveness of the crop and the soil to each other governs his business.

The gardener, however, must grow many crops that the soil is not adapted for, and it may be said that every gardener is handicapped in some part of his work, just where will, of course, depend on circumstances. It is expected that in one small area, varying but slightly in texture of soil, as many species of plants will be grown as are enumerated in a cyclopaedia. The cultivator of a stubborn clay must produce Asparagus and Potatos, on a starved sand he is expected to produce Peas and Cauliflowers, and on a calcareous soil he has to grow Lilies and Rhododendrons. Gardening consists largely in reconciling contrarities and overcoming the apparently impossible, and the actual work of any well-kept garden will, in its weak, no less than in its strong points, illustrate the intricacy of the gardeners' work, and the necessity on his part of constant attention to little things, and a habit of comparative observation.

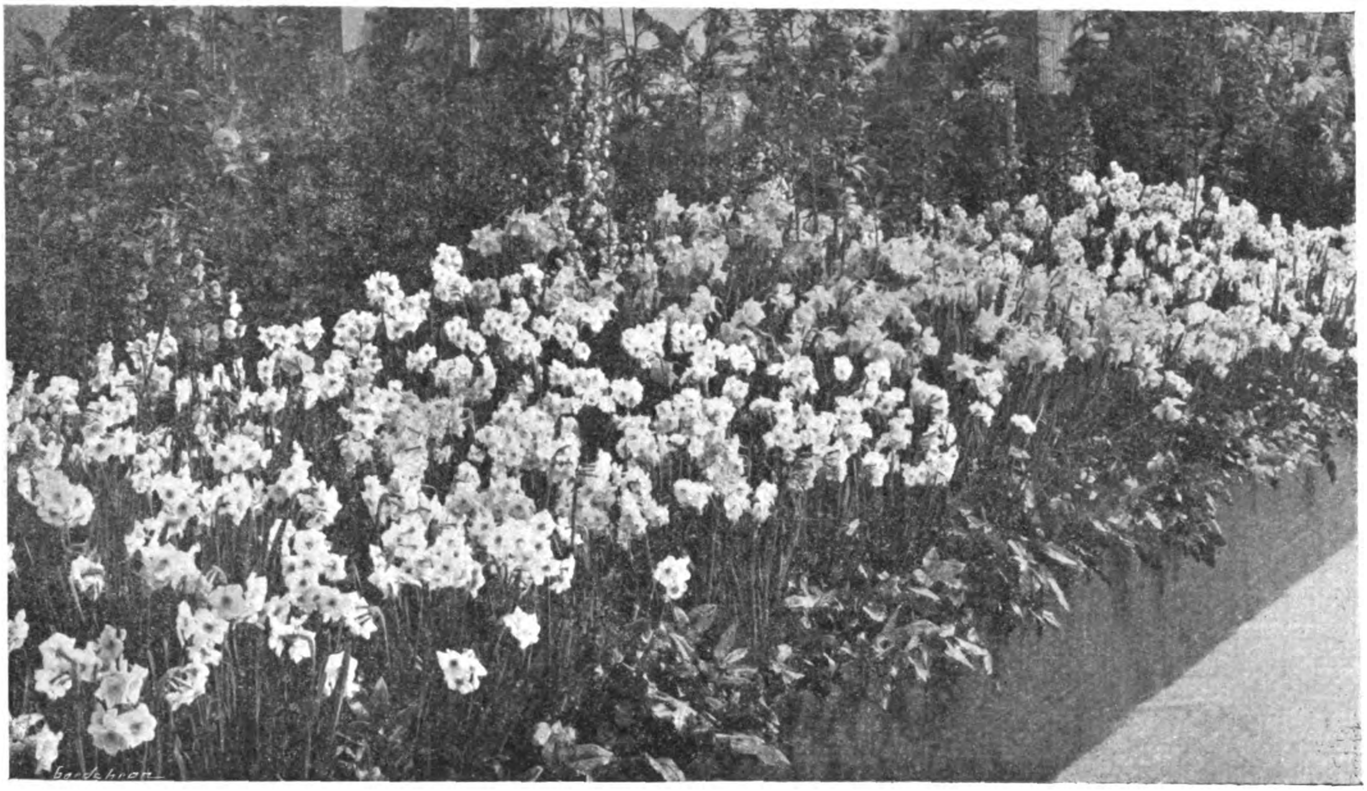


FIG. 127.—NARCISSUS POETAZ VARIETIES AND N. KING ALFRED.

Exhibited by Messrs. J. Carter and Co. at Westminster, on March 23.

(See p. 242).

The farmer is sometimes compelled, and often persuaded, to work out a rational rotation of crops; the gardener is often compelled to ignore the principle and make the best of unfavourable circumstances in order to obtain from a limited area many kinds of vegetation for which both the soil and climate are but ill adapted.

A true principle will always assert itself, however, and the best practice will always conform to true principle in the main, however special circumstances may necessitate deviations from it. Roots generally remove a large proportion of potash, the members of the pulse tribe exhaust the soil of phosphates, the Brassicas of nitrogen, and by a simple rotation recovery is facilitated. The recovery is effected by air, moisture, light, and the power known as chemical affinity. A pebble may be of no use whatever as food for a plant, but, being acted on by agencies that may be called chemical, corrosive or solvent, it may yield to the soil in which it is embedded a certain amount of soluble material that the next plant may need for its fabric, and in this way time may be said to repair the energies of the earth as sleep repairs the energies of animated nature. All this is known to men who have got beyond the first elements, but its importance is not sufficiently recognised in the routine of cultivation.

The science of manuring rests on the same order of chemical facts as the rotation of crops and, generally speaking, the gardener has the advantage of the farmer in commanding supplies of manure to obviate in some degree the evils attending a repetition of the same crops on a given area.

But scientific manuring, though of the highest importance is, in its relation to rotation, mere patchwork. The more strictly the gardener can make his practice conformable to the true theory of rotation, the better, even when his command of manure is adequate. Those who grow from year to year on the same ground may indeed ensure abundant crops, but the extreme test discloses the truth that rotation is associated with high quality, not as an accident but as a necessity. Nature practices rotation in a bolder manner than man dare dream of as botanists searching for their favourite colonies of rare plants frequently realise. The operations of man always tend to exhaust the soil, because he carries away all he can in leaf fruit or stalk and returns but little, preferring in fact, to destroy the refuse rather than return it to mother earth. Nature not only makes every crop pay its way, but adds interest to the capital, for when the plant falls to the ground to rot into mould it contains more than it drew from the soil; it has collected material from the air to add to its bulk, and thus the top crust of the earth is continually enriched where nature pursues her way unchecked.

Every plant has its enemy, and those that are ordinarily invisible or secret in their mode of assault are of the first importance in this connection. A certain plant—it may be an ornamental tree, a Cabbage, or a Grape vine—attracts certain enemies which find in it suitable material on which to live, and it is but a question of time for the land to become foul. The evil is of a cumulative kind; it may be helped or hindered by a hot season or a cold season as the case may be, but the general tendency is to establish what might be called a "fever bed." It follows that after a certain length of time, ground occupied with certain crops with no relief from rotation must become "sick" and scientific treatment, combined with rotation, alone can save such land from becoming unprofitable. The ravages of Phylloxera illustrates the case; the plague begins in old vineyards The story of "Clover sickness" may be regarded as a commentary on the doctrine of rotation.

In a general comparison of the facts of the case, what may be called the timber crop appears to illustrate the subject in a most striking manner. Land that has been long occupied by trees becomes absolutely unfitted for a crop of the same kind. That they search deeply for food, and if left alone enrich the top crust by their leaf strewings need not be insisted on, nor need one dwell on the minerals they draw up in solution from the strata into which their roots penetrate. It is important, however, that they have their enemies below ground as well as above. Certain root-haunting fungi discover the feeding ground their roots provide them, and the dead roots are by these fungi preferred to the living. Whether trees fall by natural decay or to meet the wants of man, masses of their roots remain in the ground, and are soon taken possession of by fungi, which in this direction we may characterise as nature's scavengers. Now, if we plant the ground again with the same kind of tree as it was previously occupied with, we enter upon the task with two special and big disadvantages; the crop removed has taken with it a large proportion of the chemical elements requisite to tree growth, and it has left behind it on the dead roots a fungus that will assail the next crop of trees unless through the practice of rotation there is secured for the purging of the ground sufficient time for the fungus to be starved out. Happily, the practical man need not master the history of every fungus and unsect that preys on his crops, but he must be respectful to the principle of rotation or pay the penalty. *A. P. C.*

HOME CORRESPONDENCE.

The Editors do not hold themselves responsible for opinions expressed by correspondents.

Daphne Laureola.—Specimens taken from a cultivated shrub growing at the base of a ten-foot Irish Yew, in medium, loamy soil, facing south-west, with plenty of shade, and sheltered from the north and north-east, were fragrant when cut, and remained fragrant in a cool room. The scent was less noticeable when the sprays were placed in a warm room, at 65° to 70°. Towards evening the fragrance of this particular shrub (or shrubs, there are two) increases, and fills the air for a distance of twenty yards. Specimens were taken from shrubs growing wild in the middle of a Thorn hedge which runs from south-west to north-east and faces south-east, in an open situation, the hedge being barely four feet in height, and apparently kept cut short year after year. Growing in stiff loam and facing south-east the flower heads were quite as large as those of the cultivated specimens, and slightly fragrant when cut. The fragrance increased a little when the sprays were placed in a cool room, but was lost in a temperature of 65° to 70°. I paced out one hundred yards and noticed ten healthy specimens in the hedge. Other specimens were taken from the midst of a Thorn hedge ten feet high, slightly sheltered from the south and south-west and facing north-west, growing in stiff loam. The flower heads were much smaller than usual and had no scent when cut, but the fragrance was just noticeable after they were placed in a cool room, but disappeared in a temperature of 65° to 70°. In this hedgerow I counted no fewer than twenty-eight specimens of D. Laureola in one hundred yards. The second and third sets of specimens were from opposite hedgerows bordering a third-class road. From my observations I conclude that shade, and plenty of it—preferably at the base of some other shrub—and a position facing south or south-west provide the ideal spot for the cultivation of the fragrant Daphne Laureola. *R. A. Hulme, Hackleton, Northampton, March* 17.

Insects.—Mr. Nicholson's note (see p. 219) is instructive, but unless one adopts the American style and classes all small life under the headings of "bug" or "worm" what is the alternative? "Insect," of course, has a definite meaning to a naturalist, but with the man in the street it covers the idea of spiders and all other small creatures. There is, so far as I know, no word of our language covering the smaller forms in life, so that one is driven to use "insect" incorrectly. Cannot *The Gardeners' Chronicle* follow the prevailing fashion and have a competition for the required word, handicapping Anglo-Saxon against Greek and Latin. *Chas. E. Pearson, Lowdham.*

Dombeyas.—During the past two months considerable discussion has taken place in *The Gardeners' Chronicle* concerning Dombeyas. Different kinds have been described by prominent authorities and some figured. At the Royal Horticultural Society's meeting on January 12 last, I showed a plant in flower of Dombeya Glaneliae (provisional name), which received an Award of Merit, and at the time had no idea the parentage of this beautiful Dombeya would excite so much interest among British and continental horticulturists. Mr. Besant, of Glasnevin, seems convinced that our plant is Dombeya Wallichii. In the same issue (*Gard. Chron.*, February 6, p. 99) M. Cayeux, of Le Havre, expressed the opinion that he raised this particular hybrid in Lisbon, and named it D. Cayeuxii. Personally, I am not convinced that either is correct. In the issue of March 20 (p. 208), Mr. Alwin Berger states that it is quite impossible to name any plant from a figure alone. I am quite in agreement with Mr. Berger, and on that account should like the various writers to know I have been doing everything possible to clear up the origin of Dombeya Glaneliae. Two years ago, Lord Glanely sent me a consignment of plants and shrubs from Madeira, and amongst these was this Dombeya, which I flowered the following spring. I sent the inflorescence and some leaves to Mr. Preston of the Cambridge Botanic Garden, who was unable to identify it, while his subsequent investigations at Kew revealed no further information. After showing the plant at Vincent Square, I forwarded shoots and flowers to your able correspondent, Mr. Coutts, Assistant Curator at Kew,whois inclined to think the plant is D. Cayeuxii. I am now propagating several plants which will be sent to Kew, where, I trust, the authorities will be able also to secure some plants of the true D. Cayeuxii. If both should flower in January, then the proper name will be definitely settled. Meantime, I understand the provisional name of Dombeya Glaneliae will remain. *John Bannerman, Lackham Gardens, Lacock, Chippenham.*

Warter Priory Gardens.—It is very pleasing to learn that although the Warter Priory estate is now in the market, Lady Nunburnholme is still keeping the gardens up to the high standard for which they have been noted for many years. I doubt if there are many gardens which are now kept up to such a high standard of efficiency as those at Warter Priory are to-day, but this is not to be wondered at, as Lady Nunburnholme is a keen horticulturist, and has a capable gardener in Mr. W. H. Kitching who is one of our "promising young men." *Robert Greenfield.*

Prunus salicina.—In your issue of March 27 you state that this species was introduced into California in 1870, "where it has given rise to a number of varieties." May I point out that this is hardly correct. Prunus salicina, the native Plum of China, there occupies the place that Prunus domestica does in Europe, and has given rise to varieties which have been cultivated for many centuries, and which are now generally known in this country as "Cape" Plums. These were imported into California in 1870, and after, and were there re-named by the importers and introduced to the American market. For example, the varieties Burbank and Satsuma were raised by Burbank from imported seeds. Abundance, Chabot and Kelsey were imported as plants, and they have Chinese or Japanese names. It is true that from these imported varieties seedlings have been raised in California, but it is only fair to point out that the development of the garden varieties of Prunus salicina is due to the Chinese, and not to Californians. *Edward A. Bunyard, Maidstone.*

SOCIETIES.

READING AND DISTRICT GARDENERS'.

The fortnightly meeting of this association was held on the 22nd ult., the President, Mr. Frank E. Moring, presiding. The subject for discussion was "Salads Throughout the Year," and was introduced in a most interesting, instructive and enjoyable lecture by Mr. H. Prince. In his opening remarks the lecturer said that the subject of salads was difficult to define as one could not exactly say what came under the category of salads. Our ancestors used an enormous amount of salads, but not the mixtures of to-day. They restricted themselves chiefly to different varieties of herbs, and ate them mostly from a medicinal point of view. The enormous range of herbs grown in those days gave them a good choice, and the spring of the year was the chief period for this salad consumption. In the salads of to-day we find quite different ingredients used, the chief of which are Lettuce, Endive, Chicory, Corn Salad, Mustard, Cress, Watercress, Tomatos, Cucumbers, Beet, Celery, Dandelion, young Onions, Chives and Chervil. Each of the kinds mentioned was separately dealt with, and much useful advice was given, not only as regards their cultivation, but as to their uses, and the time at which they should be brought to maturity so as to be able to keep up a supply throughout the year

There was only one exhibit, by Mr. C. J. Howlett, The Yews, Earley, who received an Award of Merit for a large and well-flowered plant of Cypripedium insigne.

TORQUAY GARDENERS'.

This association held its annual Spring Show at the Town Hall, Torquay, on March 24 and 25. The show was one of the finest ever seen in Torquay, and a gorgeous display of all spring flowers was provided.

The horticultural trade was well represented. Messrs. R. Veitch and Son, Exeter, staged an interesting collection of flowering shrubs, including Acacea cultriformis, A. spiralis, Pyrus Malus pyramidalis purpureus, Grevillea Preissii, G. sulphurea, Drimys aromatica and a collection of very interesting Kurume and other Japanese Azaleas. Messrs. Sutton and Sons exhibited a fine bank of giant-flowered Cyclamens, all well-grown and with a wide range of colours; one variety, Salmon-Scarlet, was very striking; others included white with a crimson eye, cherry-red, salmon, with silver-zoned foliage; and a large pure white variety. Messrs. Barr and Sons, exhibited a fine collection of Daffodils; there were about sixty varieties, including many new seedlings among which was a specially fine, large, Incomparabilis variety, with clear yellow perianth and bright red cup. Among the named sorts we noted good examples of King Alfred, Bonaparte, Lord Kitchener, Croesus, and Royal Gold. A few alpines were also shown and some capital clumps of the Pasque Flower (Anemone Pulsatilla).

Messrs. C. Engelmann and Son arranged a bold group of perpetual-flowering Carnations; among the most prominent varieties were White Enchantress, Rouge, Nero, Topsy and Laddie. Mr. H. Clark put up a miscellaneous group including some fine examples of Primula malacoides var. Princess Mary, and the double white form; also a fine strain of the old pot Marigold (Calendula officinalis) named Ball's variety, said to be an introduction from America. A very interesting collection of plants from Miss P. Okenden, Stoke Fleming, Devon, included fine specimens of Omphalodes cappadocica, Geum pyrenaicum, Vinca purpurea fl. pl., and a very good form of the true Blue Primrose. The Devon Rosery staged a well-arranged group of rambling and H.T. Roses in pots, Azalea indica, Acacia spiralis and Magnolias. The Victoria Nurseries exhibited some good specimens of "Blue"

Hydrangeas. Messrs. BURRIDGE AND SONS had a brilliant group of well-grown Azalea indica varieties, Genista fragrans and Ericas in variety.

In the group of Rhododendrons shown by EDEN PHILLPOTTS, Esq., was a fine specimen of R. gloxiniaeflora, standing about fifteen feet high, and around this were grouped plants of R. arboreum, R. Thompsonii, R. Veitchii and R. Nuttallii, which made a bold show.

The amateurs' competitive exhibits were of very high quality; Cyclamens, Hippeastrums and Daffodils were the outstanding features.

First prize for a group of miscellaneous plants was won by T. POPE, Esq. (gr. Mr. Huxtable), with a pretty arrangement that included well-grown plants of Cineraria stellata, Cyclamens, Primula malacoides and P. obconica.

The Silver Challenge Cup for a collection of Hippeastrums went to Mrs. STARKIE (gr. Mr. J. Powell), who staged large-flowered, broad-petalled varieties in many brilliant colours. For six pots of Cyclamens, the first prize was awarded to R. W. WILLIAMS, Esq. (gr. Mr. Browning), who exhibited magnificent specimens each bearing from forty to fifty flowers.

For a table decoration the first prize was awarded to A. CORNISH, Esq., for a very dainty table of Primula malacoides.

The Daffodil section was one of the features of the show, competition being very keen and the quality of the flowers exceptionally fine. The Silver Challenge Cup for twelve varieties was awarded to J. H. CHARLESWORTH, Esq., Cockington Court (gr. Mr. Avery), who staged some magnificent blooms of Van Waveren's Giant, Lord Kitchener, Bonaparte and Bernardino. The Barr Silver Cup for fifteen distinct varieties was also won by J. H. CHARLESWORTH, Esq., with flowers of perfect form, which included King Alfred, Bonaparte (a fine yellow Incomparabilis), Croesus, Lucifer, and Primrose Phoenix.

Other leading prize winners were W. ANNING, Esq. (gr. Mr. W. Clark), H. G. CUMMING, Esq. (gr. Mr. G. Drake), Mrs. DREWE (gr. Mr. J. Cleave), W. BALL, Esq. (gr. W. H. Damerell), Sir F. LAYLAND BARRETT (gr. Mr. J. Wilson), H. H. VANSTONE, Esq. (gr. Mr. J. Nadlan), and T. POPE, Esq. (gr. Mr. A. Huxtable).

SPRING FLOWER SHOW AT NICE.

THE spring show of the Société d'Horticulture Pratique de Nice et des Alpes-Maritimes opened at Nice on March 25. The show was held in the gardens behind the Casino Municipal, and a special building was erected for the purpose. This building, it is interesting to note, was lighted by the same method as will be adopted for the new hall of the Royal Horticultural Society. A prolonged drought which broke on March 21, interfered to some extent with the exhibits, but the general opinion holds that Riviera Carnations have never been better shown.

The famous firm of ANDRE BONFILS were *hors concours* on this occasion; they put up a magnificent exhibit of Carnations, in pottery vases, and showed an outstanding novelty, Madame Piedoye. This was raised by M. Piedoye, of St. Laurent-du-Var, and is technically described as regards colour, as "Rosa Hermosa No. 1." The colour is a warm salmon with white margins and the flowers are five inches across. Other fine varieties shown by this raiser are President Georges Clemenceau, cerise and wine-red in the centre, passing to pomegranate-red at the edges; and Blanche Tellepot, a beautiful white flower.

CLAUDIUS VALMY of Caucade, Nice put up a fine exhibit which included a novelty, Don Jauné de Bourbon, Indian-red with white edge; Alice Ferincery, magenta and white; and Gustav V. de Suede, salmon and white. A new yellow Carnation, Victor Béguin, was shown by M. JEROME VIGON, of Nice.

M. E. AVERY, St. Laurent-du-Var, was successful with Souvenir de la Madeleine and La Liberte Carnations. This firm also specialises in Freesias, and showed two good violet forms named Imperial and Dorothy, and a clear yellow named Yellow Prince. MM. JOLY ET FILS, of Nice, had magnificent vases of Carnations Madame Joly and Papa Joly.

Many other firms showed superb masses of Carnations, admirably arranged in grass lawns. MM. DUPOUX ET CIE had a fine group of Azaleas, Albert-Elizabeth was a much admired flower—Lilacs, Roses, Hydrangeas and Palms in different parts of the show. They carried off the premier honours for their Palms.

MM. MAIFFRET FRS., of Beaulieu, showed a fine group of Riviera shrubs, amongst which Raphiolepis Dalecouri, Grevillea acanthifolia and Brachysema were conspicuous. Stocks were shown in magnificent style by M. CASMIR STRANDO, of Nice.

COMTE BERTIER of La Lanterni, had a Cactus garden in which Opuntia tunicula and Pilocereus scoparius were noteworthy specimens.

An attractive formal garden "La Jardin Provençal," was arranged by M. OCTAVE GODERA, of Nice. Citron fruits were shown in great variety by M. EUGENE. PELRUE, of Mentone.

One side of the show was devoted to vegetables. The syndicates of market gardeners of Nice and the Var Valley had magnificent exhibits, amongst which was a remarkable Broccoli Négre, with chartreuse-green inflorescence and black foliage. The firm of M. JEROME BAUDOIN, of Nice, showed Cardoons six feet high, Asperges-de-Nice, Artichokes (Violette de Provence),. a very fine Lettuce (du Trocadero, Le Préférée), and colossal Cauliflowers.

BRITISH MYCOLOGICAL.

INSTEAD of the usual March meeting for the reading of papers, the members of this Society visited, on the 20th ult., the Lister Institute.

Dr. G. H. Pethybridge, President of the Society, opening the proceedings, stated how sorry all were at the absence through illness of Dr. R. H. John Brooks, curator of the National Collection of Type Cultures. Dr. J. A. Arkwright then took charge of the party, and gave first a short history of the Institute. At the time of the hydrophobia epidemic in the late eighties, patients were sent to the Pasteur Institute, Paris, for treatment. A meeting was held at the Mansion House in 1889 to express appreciation of French help, and £2,000 was collected and forwarded to the Pasteur Institute as a donation towards its upkeep. A general feeling, however, that the country should possess such an Institute received expression, and a committee was formed to collect money and formulate a scheme for a British Institute of Preventive Medicine; of this Lord Lister was chairman. The money was soon collected, many generous gifts being received. The present building was opened in 1898, with an extension twelve years later. One of the first objects was to make antitoxic serum and the institute had a farm at Sudbury and later at Elstree, where a good deal of research goes on. The work of the Institute at present is divided into four departments: Bacteriology, Experimental Pathology, Protozoology and Chemistry. There is not much routine investigation now except for public bodies, but a considerable amount of advisory and specialist work is done.

The party were then conducted to the cold room, the sterilising and media making rooms, the animal houses, the library, etc., and saw the experiments on feeding animals with or without vitamines and artificial sunlight. Most time was spent in the National Collection of Type Cultures, where Miss M. Rhodes, assistant curator, had arranged a series of cultures of Fungi pathogenic to plants and man; yeasts, soil fungi, Penicillium spp. and several odd fungi of especial interest. This collection of Bacteria and Fungi is maintained by the Medical Research Council, and is for the purpose of aiding those wishing to obtain organisms for comparison and investigation. It is to be hoped that as a result of the visit, the collection will become better known to mycologists and teachers, and that investigators will send cultures of their fungi to the collection so that it will eventually be a truly National one.

ANSWERS TO CORRESPONDENTS.

DISBUDDING PEACH TREES.—*C. R.* A healthy Peach tree will form nearly as many fruit buds as leaves, and the majority of these fruit buds will set fruits, therefore it is not difficult to arrive at the conclusion that numbers of these buds and fruits are superfluous and will have to be removed if a good crop of fine fruits is to be obtained. The time to disbud must be governed by the condition of the trees; vigorous trees are fit for disbudding so soon as the young fruits appear. Disbudding should be delayed on weaker trees until the sap becomes more active. If your tree is healthy and was properly pruned and trained in the autumn, select a well-placed, promising shoot on the top side, near the base, others about fifteen inches apart, and a healthy terminal bud for extension, then rub off all the back and foreright shoots first, and possibly half the others. If any of the young shoots which it seems desirable to remove have fruits set at the base, the shoots should be pinched back to three leaves, and finally removed with a sharp knife after the fruits are thinned. Later, when the trees are in full growth and the necessary shoots have been carefully tied in, any other growths likely to interfere with the proper development of the tree should be removed, pinching others that are likely to become too vigorous. Thin the fruits lightly and early, repeating the operation at short intervals until one healthy Peach is left to every ten-inch square space of surface covered. Even this is a heavy crop and allows sufficient surplus in case of losses.

NAMES OF PLANTS.—*F. A. A.* Pieris floribunda. *C. B.* 1, Forsythia suspensa; 2, Cydonia japonica; 3, Kerria japonica fl. pl. *P. C.* 1, Sparmannia africana; 2, Megasea cordifolia.

NOTICE TO QUIT A MARKET GARDEN HOLDING.—*M. E. W.* The notice to quit is valid provided it does not purport to determine your tenancy before the expiration of twelve months from the end of the current year of tenancy. Without full information as to the area of your holding, the nature of the improvements, whether the landlord's consent was obtained or not, and the reason for the notice, it is impossible to advise you as to your rights to compensation for improvements or disturbance In the absence of an agreement in writing that the holding was to be let or treated as a market garden the special provisions as to market gardens contained in the Agricultural Holdings Act, 1913, do not apply.

PLUM TWIGS INFESTED WITH SCALE INSECTS. *W. M. M. D.*—The insect infesting the Plum twigs is a species of Scale common to Plum trees (Aspidiotus ostreaeformis). As other remedies appear to have failed, try spraying with lime-sulphur when the trees are dormant.

TULIP STEMS COLLAPSING IN WATER. *E. N. B.*—We are puzzled with the Tulip stems received from you, and can find no trace of fungus in the tissues; a portion of the twisted stem was placed in a culture medium, but gave no trace of fungus. We have consulted entomologists but they do not recognise the trouble. If the stems had behaved so when growing we should have suspected Sclerotina; but cannot see how the twisting can be due to a fungus. It looks as if the cells of the stalk had become overcharged with water in some way and had collapsed later.

Communications Received.—J. H.—A. S. P.—S. C.—W. F. S.—W. W. S.—F. S. B.—B. H. M.—A. S.—A. W. H.—L. J.—C. N.

TRADE NOTE.

READERS requiring information and advice respecting Patents, Trade Marks or Designs, should apply to Messrs. Rayner and Co., Patent Agents, 5, Chancery Lane, London, who will give free advice to readers mentioning this paper.

MARKETS.

COVENT GARDEN, Tuesday, March 30th, 1926.

Plants in Pots, etc.: Average Wholesale Prices.

(All 48's except where otherwise stated).

	s. d. s. d.
Adiantum cuneatum per doz. ...	12 0-15 0
—elegans ...	12 0-15 0
Aralia Sieboldii	9 0-10 0
Araucarias, per doz.	30 0-42 0
Asparagus plumosus	12 0-18 0
—Sprengeri ...	12 0-18 0
Aspidistra, green	36 0-60 0
Asplenium, per doz.	12 0-18 0
—32's	24 0-30 0
—nidus	12 0-15 0
Azaleas, 48's, each	4 0—6 0
Boronia megastigma, 48's, per doz.	30 0-36 0
Cacti, per tray —12's, 15's ...	5 0- 7 0
Cinerarias, 48's, per doz. ...	18 0-21 0
Crotons, per doz.	30 0-45 0
Cyclamens, 48's in variety, per doz.	24 0-30 0

	s. d. s. d.
Cyrtomium ...	10 0-25 0
Daffodils, 48's, per doz. ...	18 0 21 0
Genistas, 48's, per doz. ...	24 0-27 0
Hyacinths, large white, 48's, per doz.	21 0 24 0
Hydrangeas, pink, 48's, per doz....	24 0-30 0
—white, 48's, per doz.	24 0-27 0
—blue, 48's, per doz.	24 0-36 0
Marguerites, 48's per doz. ...	18 0-21 0
Nephrolepis in variety ...	12 0-18 0
—32's	24 0-36 0
Palms, Kentia	30 0-48 0
—60's	15 0-18 0
Pteris, in variety	10 0-15 0
—large, 60's ...	5 0- 6 0
—small	4 0- 5 0
—72's per tray of 15's	2 6- 3 0

Cut Flowers, etc.: Average Wholesale Prices.

	s. d. s. d.
Adiantum decorum, doz. bun.	12 0-15 0
cuneatum, per doz. bun. ...	10 0-12 0
Anemone fulgens, per doz. bun.	2 6- 3 6
Arums (Richardias) per doz.	10 0-15 0
Asparagus plumosus, per bun., long trails, 6's,	2 0- 3 0
med. sprays	1 6- 2 6
short	0 9- 1 3
—Sprengeri, bun long sprays...	1 6- 2 0
med. „ ...	1 0- 1 6
short „ ...	0 4- 1 0
Azalea, white, per doz. bun.	6 0 7 0
Camellias, white per box, 12's	3 0- 3 6
Carnations, per doz. bloom.	3 6—5 6
Croton leaves per doz. ...	1 9- 2 6
Daffodils, Golden Spur, single, per doz. bun.	3 6- 4 0
—Emperor, per doz. bun. ...	4 0—6 0
—King Alfred, per doz. bun.	8 0—9 0
—Sir Watkin, per doz. bun.	4 0—5 0
—Victoria, per doz. bun. ...	6 0—8 0
Fern, French, per doz. bun.	10 0-12 0
Forget-me-not, per doz. bun.	9 0-15 0
Freesia, white, per doz. bun.	2 6—3 6
French Flowers—	
—Anemone, De Caen, per doz. bun.	5 0—6 0
Anemones, St. Bridgid, per doz bun. ...	4 0—6 0
—double pink, per doz. bun.	1 6—2 0
—double red, per doz. bun.	2 6—3 0
—Parma Violets, per bun. ...	3 0—3 6
—Ranunculus, scarlet, per doz. bun. ...	6 0—7 0
carmine, per doz. bun. ...	5 0—6 0
—orange, per doz. bun. ...	12 0-15 0
—Star of Bethlehem. (Allium), per doz. bun.	3 0—3 6
Gardenias, 12's, 18's. per box	5 0—7 0
Heather, white, per doz. bun.	10 0-12 0
pink, per doz. bun.	9 0-12 0
Hyacinths, large white, per doz. spikes ...	3 0—4 0

	s. d. s. d.
Iris blue, per doz. blooms ...	2 6—3 0
Lilac, white, per doz. sprays...	6 0—7 0
Lilium longiflorum long, per doz.	7 0—8 0
—speciosum rubrum, long, per doz. blooms ...	4 0—5 0
—short, doz. blooms ...	2 6—3 6
Lily-of-the-Valley, per doz. bun.	24 0-36 0
Narcissus Grand Primo, per doz. bun.... ...	3 0—4 0
—Narcissus ornatus, per doz. bun.	3 0—5 0
—Barrii, per doz. bun.	3 0—4 0
—Leedsii, per doz. bun. ...	4 0—6 0
—Poetaz, per doz. bun. ...	4 0—6 0
—Horace, per doz. bun. ...	8 0—9 0
Orchids, per doz.	
—Cattleyas ...	24 0-30 0
—Cypripediums	5 0—7 0
Roses, per doz. blooms—	
—Madame Abel Chatenay ...	5 0—7 0
—Molly Sharman Crawford	5 0—7 0
—Richmond ...	3 6—6 0
—Columbia ...	5 0—7 0
—Golden Ophelia	5 0- 6 0
—Sunburst ...	5 0—6 0
—Mrs. Aaron Ward	4 0—5 0
—Madame Butterfly	5 0—8 0
Smilax, per doz. trails	6 0—7 0
Stock, double white, per doz. bun.	3 0—4 0
Sweet Peas, per doz. bun.	12 0-18 0
Tulips—	
—white	27 0-30 0
—yellow ...	27 0-30 0
—scarlet ...	24 0-30 0
—pink	24 0-30 0
—W. Copland, per doz. bun. ...	24 0-30 0
—Clara Butt ...	— 30 0
—Couronne d'or, per doz. bun.	18 0-21 0
—Murillo, per doz. bun. ...	15 0-18 0
—Tea Rose, per doz. bun. ...	18 0-21 0
—Lucretia ...	18 0-24 0
—Double yellow	24 0-27 0
—Darwin—	
—Bartigan ...	24 0-27 0
—Elizabeth ...	30 0-36 0
—Farncombe Sanders ...	24 0-27 0
—Le Notre ...	24 0-27 0
Violets	3 0—4 0

REMARKS.—Business should be brisk in this department during this week owing to the extra demand for the Easter festivities, and most subjects may advance in price. especially for Liliums and Carnations. The quantities of Roses appear to be sufficient for present requirements, and their prices remain normal. The sorts named in the list are all arriving in excellent condition. It is difficult to give a correct quotation of prices for this coming week which will be ruled by the supply and demand. There will be a good demand for Narcissi of all kinds, Stocks, Star of Bethlehem (Allium), Tulips, Daffodils and various kinds of foliage.

Fruit: Wholesale Average Prices.

	s. d s. d.
Apples, Cooking—	
—Bramley's Seedling ...	8 0-14 0
—Lane's Prince Albert	8 0-12 0
—Newton Wonder ...	8 0-12 0
Apples, American	
—Oregon Newtown ...	15 0-16 0
—Winesap ...	10 0-12 0
Apples Nova Scotia—	
—Ben Davis ...	10 0-18 0
—Nonpariel ...	14 0-25 0
—Stark ...	10 0-16 0
Bananas	17 6-27 6
Dates (Tunis), per doz. cartons	3 0—4 6
Grapes, per lb—	
—English Colmar	3 6—5 0
Grapes, Belgian—	
—Gros Colmar	2 6—3 6
Grape Fruit,	
—Jamaica ...	25 0-30 0
—Isle of Pines	25 0-30 0
—Florida ...	32 6-40 0
Lemons, Messina, per box ...	10 0-11 6

	s. d. s. d
Oranges—	
—Denia	13 0-35 0
—Jamaica ...	13 0-16 0
—Murcia ...	13 0-35 0
—Jaffa ...	18 0-24 0
—Palermo Bitters	4 6—6 0
Forced Strawberries ...	10 0-18 0
South African fruits—	
—Plums, Wickson	5 0—6 0
—Kelsey ...	8 0-14 0
—Pears, Beurré Hardy ...	4 0—6 0
—Louise Bonne of Jersey ...	4 0—6 0
—Duchesse ...	3 6—4 0
—Comice ...	8 0-12 0
South African Grapes—	
—Hermitage ...	— 7 6
—White Hannepoot... ...	10 0-12 0
—Reo dd. ...	10 0 12 0
—Waltham Cross	10 0-12 0
—Rosaki ...	— 12 0
—Gros Colman	10 0-12 0
Strawberries, per lb.	10 0—18 0

Vegetables: Average Wholesale Prices.

	s. d. s. d.
Artichokes, green per doz. ...	1 6—2 0
Asparagus—	
—Cavaillon ...	2 3—2 6
—Lauris ...	2 6—4 6
Beans—	
—Madeira, per basket	6 0—8 0
Boxes	8 0-10 0
—Guernsey and Worthing forced...	2 0—3 0
Broad Beans, per case	3 0—4 0
Beets, per cwt.	6 0—8 0
Cauliflowers—	
—St. Malo, per crate	10 0-12 0
New Carrots, per doz. bundles ...	10 0-14 0
Chicory, Belgian, per lb	0 6—0 8
Cucumbers, per doz.	7 0—9 0
Endive, per doz.	2 6—4 0
Horseradish, per bundle ...	1 3—1 6
Lettuce, round, per crate ...	5 0—7 0
—long, per doz.	5 0—6 0
Mint, forced ...	2 0—4 0
Mushrooms, —French ...	1 6—2 0
Mushrooms, —cups	2 0—3 0
—Broilers ...	1 6—2 0

	s. d. s. d.
Onions—	
—Dutch	7 0—8 0
—Valencia ...	7 6—8 6
Parsnips, per cwt.	0—7 6
Peas, French crate	6 0—8 0
Potatos—	
—Dunbar ...	7 0—8 3
—King Edward, per cwt. ...	5 6—7 6
—others	4 6—6 0
New Potatos—	
—Spanish, per cwt.	25 0—28 0
—Algerian per lb.	0 1½-0 2½
—Canary Island	12 0-18 0
—Guernsey ...	0 8—0 9
Rhubarb, forced, per doz. bundles	0 9—1 3
—outdoor ...	4 0—5 0
Seakale, per box, 8lb. ...	4 0—5 6
—natural, lb....	— —0 6
—punnet ...	— —1 6
Spinach, per bushel ...	6 0—7 0
Spring Greens, per bag ...	6 6—7 6
Savoys, per doz.	3 0—3 6
Tomatos, Canary Islands Best...	20 0-26 0
—English... ...	3 0—4 6
Turnips, per cwt.	5 0—7 0
—new, per doz. bunches ...	12 0-18 0
Turnip Tops, per bag ...	4 0—4 6

REMARKS.—Trade has been fairly satisfactory during the past week, with an improving demand. Cape fruits, consisting mainly of Pears, Plums and Grapes are arriving in heavy quantities and meeting a good market. The first Australasian Apples of the season are to hand; some parcels are affected with bitter-pitt. but fruits in good condition are selling well. Home-grown Bramley's Seedling from cold storage are selling more freely; generally the fruits have kept well. There are still some American Newtown Apples available, which are selling moderately well, and also a few Apples from Nova Scotia. Choice vegetables are a shade better business due to the Easter demand. Forced Beans are fairly plentiful. New Potatos from Guernsey are slightly dearer in spite of competition with Potatos from Spain, Azores and the Canary Islands. The few English Tomatos arriving are, realising high prices Cucumbers are more plentiful, but the demand is good and they are maintaining their former price level. Mushrooms are rather scarce but prices keep steady. Salads are in good demand. Green vegetables are in request. Asparagus from France is plentiful and quoted at a reasonable price.

GLASGOW.

As usual on the approach of Easter, a firmer tone characterised the business in the cut flower market during the past week, and the recovery was accentuated by reduced supplies. The scarcity was most acute on Friday, when the best prices of the week were recorded. Lily-of-the-Valley advanced to 3/6 per bunch, Richardias were worth from 10/- to 12/- per dozen, and Guernsey blooms from 5/- to 9/-; Carnations, special, 6/- to 8/-; ordinary, 2/6 to 3/6; White Lilac, 5/- to 7/-; coloured, 5/- to 6/-; Prunus, 3/- to 4/-; Freesia, 1/6 to 2/-; Anemones, 6/- to 8/-; and Smilax, 2/- per bunch. Murillo Tulips ranged from 8d. to 1/- for best, and 6d. to 8d. for ordinary; Ibis, 1/- to 1/2; Bartigon, Copland and Farncombe Sanders, 10d. to 1/3.; Double-red, 1/3 to 1/6; Tea Rose and Lucretia 9d. to 1/3; Rose Tendre, 10d. to 1/-; Elizabeth, 10d. to 1/2; Brilliant, Gris de Lin, and La Reine, 6d. to 9d. The improvement in Daffodils was even more pronounced, King Alfred making from 6/- to 8/-; Emperor, 3/- to 4/-; Sir Watkin, 2/6 to 4/-; princeps, 1/6 to 2/-; Golden Spur, medium, 2/- to 2/3; large, 3/-; Barrii conspicuus, special, 6/-; ordinary, 2/- to 3/-; ornatus, 6/-; Guernsey blooms, 2/- to 3/-. Smilax was dearer at 2/- per bunch. Small Hydrangeas sold at 8d. per pot; Azaleas realised 3/-; and small Ferns, 2/6 per dozen.

The first of the season's bedding-out plants arrived at the end of the week, but the demand was poor. Sweet Williams, Wallflowers, Violas, Polyanthuses, Canterbury Bells, Daisies, Myosotis and Delphiniums were quoted nominally at 1/- per box. Tomato plants were worth 10/- per 100.

In the vegetable section prices inclined to droop. Outdoor Lettuce cheapened to 3/- per dozen; English Rhubarb dropped to 16/- per cwt, while the Polmont produce was 6/- down at 28/-; and Cucumbers receded to 9/- and 12/- per dozen. Asparagus averaged 3/- to 3/6 per bunch; Paris Green, 4/6 to 5/-; Endive, 2/6 to 3/6; Salad, 2/6; Syboes, 5/- to 6/- per dozen bunches; Artichokes 1/6 to 1/9; and Chicory, 5d.

The feature of the fruit market was an advance of 6/- to 8/- per barrel in Apples. Canadian Greening varied from 36/- to 40/-; Baldwin, 24/- to 30/-; U.S. Ben Davis, 22/- to 26/-; Gano, 20/- to 28/-; Baldwin, 22/- to 28/-; Greening, 32/- to 38/- and Albemarle, 26/- to 49/-. Oranges were also cheaper for some counts, Valencia 240's being 12/- to 16/-; Jaffa, 144's and 152's 21/- to 23/-; and Californian Navel, 26/- to 34/-. Blue Goose Grape Fruit was down to 30/-, and other brands to 24/-. Belgian-grown Colmar Grapes realised 3/6 per lb. There were large arrivals of South African fruits, and the abundance of Pears kept prices on the down grade. Beurré Hardy and Beurré Bosc were worth from 5/- to 6/-; Beurré Diel, 4/- to 5/-; Doyenné du Comice, 7/6 to 8/6; and Louise Bonne of Jersey, 4/6 to 6/-. Elberta Peaches fluctuated between 6/6 and 8/6, and Kelsey Plums between 8/6 and 10/-.

SCHEDULES RECEIVED.

BATH AND DISTRICT HORTICULTURAL SOCIETY.—Rose and Summer show to be held on Wednesday and Thursday, July 14 and 15, at the Victoria Park, Bath.—Secretary, Mr. F. J. Cashnella, 7, Cambridge Place, Bath.

ROYAL HORTICULTURAL AND ARBORICULTURAL SOCIETY OF IRELAND.—Spring show to be held on April 7 and 8 in the Covered Court, Earlsfort Terrace, Dublin; Autumn Show to be held on August 4, 5 and 6 in the Royal Dublin Society's premises, Ballsbridge, Dublin. Secretary, Mr. E. Knowldin, 5 Molesworth Street, Dublin.

WADHURST GARDENING ASSOCIATION.—Exhibition to be held on Wednesday, June 23, in the Memorial Hall, Wadhurst.—Secretary, Miss Montray Read, Gate House, Wadhurst.

CATALOGUES RECEIVED.

G. H. DALRYMPLE, The Nurseries, Bartley, Southampton.—Freesias.

J. LIONEL RICHARDSON, Prospect Gardens, Waterford.—Daffodils.

MESSENGER AND CO., Ltd., Midland Horticultural Works, Loughborough.—Horticultural Buildings, etc.

Foreign.

VILMORIN-ANDRIEUX AND CIE, 4, Quai de la Mégisserie, Paris.—Plants.

TRADE MARKS.

THIS list of Trade Marks of interest to readers has been selected from the Official Trade Marks Journal, and is published by permission of the Controller of His Majesty's Stationery Office.

HUMAZONE.

465,757.—Manures and Fertilisers.—Walmsley and Barlow, Willow Mill, Hanover Street, Bolton, Lancashire. March 17.

ECLIPSE.

645,516.—Spraying Machines.—W. Grimley and H. Mould, 1a, Rawlings Road, Bearwood, Birmingham. March 17.

ERLYBIRD.

464,144.—A Wormkiller and Fertiliser.—J. Metcalf, Argyle Works, Argyle Street, Accrington. February 24.

SUN BRAND.

464,452.—Illustration of sun and bull's head bearing words SUN BRAND POTASH for Potash, prepared for agricultural and horticultural purposes.—The Potash Supply Co., 41, Eastcheap, London, E.C.3. February 24.

THE
Gardeners' Chronicle

No. 2050.—SATURDAY, APRIL 10, 1926.

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Average Mean Temperature for the ensuing week deduced from observations during the last fifty years at Greenwich, 46·8.

Actual Temperature—
The Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, April 7, 10 a.m. Bar. 30.0. Temp. 58°. Weather, Showery.

On Fruitfulness.

The habit of plants to bear fruit each in due season is so general that any departure from this beneficent procedure is apt to be disregarded or else attributed to adverse seasonal influences or defective cultivation. But science, whose business it is to declare and elucidate the mysteries which lie in all common things and events, finds intriguing and, it must be confessed, baffling problems in the rhythmic alternation of vegetative and reproductive growth which most plants exhibit. It seems perfectly natural—because we have seen it so often—that leaf and stem and root growth should, after following their vigorous course for a period, suddenly suffer arrest and give place to flower-growth. Sometimes, it is true, the two processes tend to overlap as when, for example, the young grey-green shoots of the Gorse begin to push out before the spring time flowering is over. Sometimes also, vegetative growth usurps power and a fruit or other tree remains barren long after the time that others of its kind have attained to fruitfulness. Successions of gardeners who have for centuries observed these and other departures from the general rule have, of course, resorted to many different practices designed to induce plants to behave in the usual fruitful manner. Starving, by confining in small pots, reduction of water supply, root pruning, and the like, are examples of methods which are employed to induce blossom—and fruit—formation. But although these methods may prove successful in special cases the explanation of their mode of action remains obscure—as indeed does that of the natural fruitfulness of the world of plants. It is, of course, a commonplace that a plant that is growing too vigorously is apt to bear flowers and fruit grudgingly, if at all, and it is known that if vegetative vigour can be checked, fruitfulness may ensue. But, again, the why of the matter remains to seek. Of recent years, however, a beginning has been made of the solution of this mystery of fruitfulness and although it cannot be said that the results of researches into this question are conclusive, they are, nevertheless, interesting, and suggestive. The classical work of the botanist Klebs, laid a general foundation on which subsequent investigators—mainly American—have built. Klebs showed that many of the lower plants—Fungi and Algae—may be made to pass from vegetative to reproductive stage by simple cultural treatment. In some cases a change in the light to which the plants are exposed sufficed to cause barrenness to give place to fertility; in other cases the change could be brought about with elegant certainty by altering the food materials supplied to the plant. With higher plants, however, the problem is necessarily more complex and it is rarely easy to cause a plant to change over from the vegetative to reproductive state by a simple change of cultivation. Perhaps the nearest approach to an example of fruitfulness induced by a simple operation is that provided by Tomato growers, who, if they find leaf growth excessive, cut away a part of each leaf and thereby "checking" growth induce a larger fruitfulness. Another example is that provided by the discovery that length of day—apart from amount of light—plays a part in the change over from vegetative to reproductive growth. Some plants if they are to flower require a relatively short day, that is, a relatively small number of daily hours of exposure to light; other plants need a longer day and hence it is no doubt that we have, fortunately, spring-flowering and autumn-flowering plants, as well as those which blossom in the long days of midsummer. But here again, though the facts are interesting enough, the man of science must still seek for explanations. How may these or other interferences with the plant produce the profound change which must occur when, instead of leaf buds, a plant begins to produce flowers? The explanation which has been put forward supported by a considerable body of evidence is briefly as follows. The kind of growth which a plant makes—a fruit bud for example—depends on the proportion which exists between the amounts of carbohydrates (sugars and the like) and of the nitrogen-containing substances in the cells of that part of the plant; or, more briefly, on the carbohydrate-nitrogen relation which obtains there. Thus it was shown in the case of the Tomato that fruitfulness is highest not as might have been supposed when food supplies of all kinds were at their maximum, but when the plant was rather starved with respect to nitrogen and well supplied with carbohydrate. These observations were extended subsequently to fruit trees, which are convenient subjects for experiment inasmuch as in one and the same tree may be found spurs which are fruiting and forming vegetative buds, and non-fruiting spurs in which the last year's growth is maturing into fruit buds. By chemical analysis of these two types of spur, it was found that non-bearing spurs have a different content of carbohydrate and nitrogen compounds than have the fruiting spurs; the non-bearing spurs had less total nitrogen and sugars and more of the more complex carbohydrates (starch and other polysaccharides) than occurs in spurs engaged in flower-bud formation. Thus in one and the same tree local chemical differences were discovered and correlated with specific activity. These observations throw a new light on the old problem of nitrogen supplies in nature. The vegetation of the world is no doubt limited by the amount of available nitrogen. All plants in nature are kept, as it were, in a perpetual state of nitrogen-hunger. Now it would appear that this is for their good, for were more nitrogen available the plants would take it up, grow more and produce less fruit. By keeping nitrogen supplies short, Nature forces the fulfilment of her own decree "increase and multiply." Were she more generous with nitrogen the increase would be greater, but the multiplication less. The natural thinning which takes place in fruit and other trees would also seem to be a consequence of the shortage of the nitrogen supplied to flower buds, for the fruits which drop are those which have come off worst in the competition for nitrogen. Thus it was found that the Apples which remained on the tree after the "drop" were the nitrogen "winners"—they contained nearly three times as much nitrogen as their fallen brothers. In such subtle ways does Nature keep going the struggle for existence and provide for the survival of the fit.

The Queen Visits Hampton Court.—On Thursday of last week Her Majesty Queen Mary, attended by a lady-in-waiting, visited Hampton Court and spent a considerable time in the famous gardens there. Her Majesty was particularly interested in the spring flowers in the Knott Garden and the Privy Garden, and also visited the new Tilt-yard Garden and the lawn tennis courts. Throughout the Easter holidays vast numbers of people have visited Hampton Court, and on Easter Monday the throng was so great that it became necessary to regulate their goings, while queues were formed for entrance to all the popular features, such as the Privy Garden, the Maze and the Wilderness. Although the flower beds on the lawns were not yet at their best, the famous Long Border was very attractive with masses of Daffodils and Narcissi, Wallflowers and Polyanthuses, Arabis and Aubrietia, Dicentra spectabilis and other spring flowers.

A Wealth of Spring Blossom.—The countryside at Easter presented a glorious spectacle, not only on account of the flowering of such fruit trees as Plums, Cherries and Pears, all of which are in profuse bloom this spring, but also the unusual floriferousness of the Black Thorn or Sloe. Hedges of this scrubby member of the Plum family are white from end to end with the blossoms: indeed, it is very many years since we have noticed the Black Thorn flowering so freely. The opinion was expressed by many earlier in the season that the Forsythia flowers seemed to be of a deeper tone than usual this spring, and now the Gorse seems also of a richer gold. Be that as it may, the Gorse provided a glorious feature of the landscape at a time when nearly everyone seemed to have forsaken the town for a visit to the country.

The Weather at Easter.—So far as holiday-making was concerned, the weather at Easter was ideal, although too summer-like for gardeners and farmers, who were experiencing considerable anxiety through the continuance of drought, accompanied by an excessive amount of sunshine for March and early April. The fine weather at Easter was general over the whole of the country, and on Good Friday, the 2nd inst., the temperature rose to 73° at Andover, whilst 72° was reached in a number of places. The temperature recorded at Kew that day was 72°, which exceeds by 1½° the previous highest of the first third of the month since 1871. In the west of England and in north Wales the temperature was only slightly less, 69° being reached at most places. On the Saturday the temperature again rose to 72° in several districts, and as high as 73° at Bath. The minimum temperature on Saturday night of 54° was a record for London for the whole month of April. Whilst the fine weather continued to be general on the Sunday, thunderstorms were frequent during the night of that day, and in Essex and other parts much welcome rain fell. At Croydon, Southend and Tunbridge Wells about half-an-inch of rain was recorded on Sunday night, whilst Brighton, Eastbourne and Littlehampton each had nearly a quarter-of-an-inch of rain. The thunderstorms did not, however, appear to affect the weather generally, for Easter Monday was gloriously fine, brilliant sunshine with a rise of temperature being recorded over the whole of England and Scotland. Even so far north as Banff, the thermometer reached 66°, and at Nairn, 65°. Much of the warm air was drawn from the warmer part of the Atlantic and the Azores. It is to be hoped that frost will not follow the abnormally fine weather, and spoil the promise given by the wealth of blossom on the fruit trees.

Surprises in the Garden:—According to an article in the *Daily Express* under the above title, England is "adopting a Japanese vogue" in gardens. It seems that there is a choice of a Shin garden, a So garden and a Gyo garden, and the *Daily Express* has discovered, in a professor, who is also the "eighteenth hereditary head" of a school at Nagoya, Japan, the only man in this country who knows all about these gardens, and is prepared (no doubt for a consideration) to initiate us into the joys of possessing one or all of the gardens with the weird names. We learn that Soami "stands for artistry, for culture creation, for ceremonial, and the Soami school is where these things are taught." The professor very obligingly told the reporter all about it. It seems that the three gardens, in truly scholastic fashion, are in what may be termed three grades, such as the kindergarten, elementary and secondary schools. "The Gyo is a rough impressionist affair; the So is an advance on the Gyo," but is evidently only "so-so" as a garden, because the Shin is of the higher grade and, we imagine, of the secondary school. "The Shin garden must in the first place conform to its natural surroundings. Artistic instinct and refinement have their first chance here. You then put in 'guardian' trees. These are the great stock pieces. They must be solemn-looking trees. They will be evergreens, Cedars, Yews or Pines. Rocks are the next consideration. Hewn stone will not do for the Japanese garden. Natural stones shaped and worn by the weather, are required. You let your imagination have full play with these stones. Some will be piled up in more or less human shape—sentinels over the garden. Others will suggest recumbent animals—oxen, sheep, deer. The rest will represent contemplation, worship and retirement. English gardens make beauty by masses of colour, but the Japanese is an evergreen one. Flowers in season are allowed to crop up in unexpected places. When the Shin garden is completed you have a natural vista of beauty, with a cascade, a streamlet, a bridge, an island, a patch of bogland, and a tiny mountain or two. You have taken a whole track of country and microscoped it down to two acres." All this very forcibly recalls the succinct remark of a Japanese ambassador in this country when called upon to admire an alleged Japanese garden. "We have nothing like it in Japan."

Mr. Abdelaziz Omar.—In our issue of March 27, when presenting the portrait and appreciation of Mr. J. K. Budde, the curator of the Utrecht University Botanic Gardens, we remarked on the fact that while his "trips abroad,' had been of great value to his country, the expense had been borne by himself. It is a matter for deep regret that the parsimony and short-sighted policy of the Treasury officials, not only in Holland, but in our own and some other countries should engender such a state of affairs. The economic value and ornamental flora of many a Botanic Garden have been enriched by the sacrifices of those in charge—sacrifices which, in view also of the fact that the introductions are invariably distributed for the public good, they should never have been allowed to make. This week we have the pleasure and satisfaction of recording an example of the opposite policy and we anticipate that our readers will experience surprise to find that the policy of financing trips abroad is that of Egypt. That young-old country has fully realised the immense value a term of study and observation in other countries must be to her sons and, through them, to their country. Besides encouraging periodic visits to places of importance by responsible officials, the Egyptian Government sends her most promising young men abroad for quite protracted terms so that they may thoroughly study, not only their manners and customs, but also their sciences, arts and crafts. At the moment there are over 1,000 selected young Egyptians so studying in various parts of the world. From the Ministry of Agriculture there are fifteen or so in our country. These young men, on the threshold of life, have proven by their School and College records, and by their official conduct that they will benefit by this wider education. During the period away from home they receive the pay of their grade, plus all what may be termed "out of pocket expenses," even to the purchase of books. Confident in the discretion and sound common-sense of these advanced students, the Ministries concerned do not seem to subject them to irritating restrictions. They are encouraged to visit various towns and districts in the country wherein they are studying. This freedom from petty restrictions not only tends to wider and more valuable study, but must also build up fine characters and inculcate self-reliance and the ability to make decisions on their own initiative. As in this country, agriculture in Egypt embraces horticulture, and as being of especial interest to horticulturists, we publish the portrait of Mr. Abdelaziz Omar, who for the past year has been studying horticulture in this country. The arrangement is that he will remain here for eighteen months altogether, and then spend six months in France, Italy and Germany, visiting the chief public, commercial and private horticultural establishments in those countries. In view of their past horticultural importance, we would suggest that the advisability of adding Belgium and Holland to the itinerary should be considered. On his return home Mr. Omar is likely to take charge of the Botanic Gardens at Cairo. Having decided to embrace horticulture as a profession Mr. Omar entered the Higher School of Agriculture at Giza where, in 1918, he obtained his Diplomas. He then spent eighteen months in the Botanic Section of the Royal Agricultural Society at Cairo, in a technical capacity. Here experimental work in connection with the breeding of Wheat and Cotton is of supreme importance, while other crops also receive their due attention. While in England, Mr. Omar attends lectures on pathology, mycology and entomology at the Imperial College, and he visits the Royal Botanic Gardens at Kew four times a week. At Kew he pays particular attention to the plants and trees which are likely to be suitable for introduction into Egypt, either for their economic or their garden value.

MR. ABDELAZIZ OMAR.

More Settlers for Canadian Farms.—Under the Joint Government Scheme for Settling, some three thousand British families on selected farms in Canada, 113 families, totalling nearly 600 persons, left British ports last week-end. Under the Bulk Nomination Scheme, which guarantees work on arrival and government supervision for five years, a large number of single men sailed during the week.

National Botanic Garden for New Zealand.—In a recent issue of the *Otago Daily Times*, Mr. James D. McPherson makes a strong appeal for the establishment of a National botanic garden for New Zealand. He points out that New Zealand possesses five public gardens at Dunedin, Invercargill, Christchurch, Wellington and Auckland, but the country sadly lacks fully qualified horticulturists, and a national botanic garden founded on the lines of Kew, Edinburgh, Melbourne and Harvard, would not only supply that need but become one of the greatest assets New Zealanders could possess. He urges the cultivation of collections of plants for the purpose of botanical study and identification, the gathering together of plants of economic importance, and, so far as possible, the establishment of a complete collection of native plants. The writer contends that if New Zealand had established a national botanic garden many years ago horticulture would not now be so far behind that of other countries.

Rhododendron Show at Westminster.—The Rhododendron Society will hold its first exhibition on Tuesday, April 27, at the Royal Horticultural Hall, Westminster. We have already drawn attention to the schedule and prizes offered, but Mr. Lionel de Rothschild informs us that in view of the earliness of the season the following seventeen additional classes have been formed, for which a first prize of 10s., and a second prize of 5s. are offered for each class; the first prize only to be given if more than one competitor and the second prize only to be given if more than three competitors—One truss of R. apodectum or R. dichroanthum: one truss of R. Griersonianum; one truss of R. insigne; one truss of R. Souliei; one truss of R. lanatum; one truss of any species of the 'Arboreum' series, subseries 'Adenopodum'; one truss of any species of the 'Arboreum' series, subseries 'Arboreum'; one truss of any species of the 'Barbatum' series; one truss of any species of the 'Falconeri' series; one spray, not exceeding eighteen inches from the top of the vase, of any species of the 'Cinnabarinum' series; one spray, not exceeding eighteen inches from the top of the vase, of any species of the 'Heliolepsis' series; one truss of any species of the 'Irroratum' series; one truss of any species of the 'Neriiflorum' series, subseries 'Haematodes'; one truss of any species of the 'Metternichii' series; one truss of any species of any subseries of the 'Taliense' series; one truss of any species of any subseries of the 'Thomsonii' series, other than R. Thomsonii and R. campylocarpum; one spray, not exceeding eighteen inches from the top of the vase, of any species of any subseries of the 'Triflorum' series for which an individual prize is not given.

Ministry of Agriculture Leaflets.—The Ministry of Agriculture has replaced the series of bound volumes of one hundred consecutive leaflets by attractive Sectional Volumes on distinct subjects. The following Sectional Volumes are now on sale:—No. 1, Fungus Pests of Fruit Trees, price 8d., post free; No. 2, Insect Pests of Fruit Trees, price 10d., post free; No. 3, Cultivation and Diseases of Potatos, price 8d., post free; No. 4, Fruit: Its Cultivation, Marketing and Preservation, price 1/6, post free; No. 5, Diseases of Animals, price 1/-, post free; No. 6, Weeds, price 8d., post free; No. 7, Bee Keeping, price 6d., post free; No. 8, Manures and Manuring, price 9d., post free; No. 9, Dairying and Cheesemaking, price 9d., post free; No. 10, Poultry, Rabbits and Goats, price 1/-, post free; No. 11, Pests and Diseases of Farm and Garden Crops (in preparation). Set of ten volumes, price 7/6, post free, if ordered direct from the Ministry.

Herbaceous Borders.—The enterprising Guildford and District Gardeners' Association has published, in pamphlet form, the lecture on "Herbaceous Borders," delivered by Mr. W. Auton at one of its spring meetings. The publication contains a portrait of Mr. Auton, and a number of copies bound in stiff paper covers have been signed by him for distribution among members, thus forming interesting and useful souvenirs of his visit to Guildford.

Cherry Black Fly.—The Black Aphis of Cherry (Myzus cerasi) is a serious pest of the Cherry crop, and in some seasons swarms over the shoots and under the leaves, causing the latter to curl up. Later, the honey-dew from this pest gums the leaves together and often spoils the fruits; in bad infestations the leaves and shoots are often killed outright. The Ministry of Agriculture recommends spraying the trees early in the season with a nicotine insecticide or soft soap and Quassia. By the use of suitable spraying machinery trees of any size may be sprayed thoroughly to combat this destructive pest.

Appointments for the Ensuing Week.—Monday, April 12: United Horticultural Benefit and Provident Society's meeting; Romsey and District Gardeners' Association's meeting. Tuesday, April 13: Royal Horticultural Society's Narcissus exhibition (two days); Jersey Gardeners' Society's meeting. Wednesday, April 14: Brighton, Hove and Sussex Horticultural Society's exhibition (two days); Glasgow and West of Scotland Horticultural Society's lecture; Pangbourne Gardeners' Mutual Improvement Society's meeting and lecture. Thursday, April 15: British Carnation Society's exhibition; Bermondsey Horticultural Society's exhibition. Friday, April 16: Huntingdonshire Daffodil Society's exhibition; Dundee Horticultural Society's lecture.

"Gardeners' Chronicle" Seventy-five Years Ago.—*The Original Blenheim Orange Apple Tree.* In a somewhat dilapidated corner of the decaying borough of ancient Woodstock, within ten yards of the wall of Blenheim Park, stands all that remains of the original stump of that beautiful and justly celebrated Apple, the Blenheim Orange. It is now entirely dead, and rapidly falling to decay, being a mere shell about ten feet high, loose in the ground, and having a large hole in the centre; till within the last three years it occasionally sent up long, thin, wiry twigs, but this last sign of vitality has ceased, and what remains will soon be the portion of the woodlouse and the worm. Old Grimmett, the basket-maker, against the corner of whose garden wall the venerable relic is supported, has sat looking on it from his workshop window, and while he wove the pliant ozier, has meditated for more than fifty successive summers on the mutability of all sub-lunary substances, on juice and core and vegetable, as well as animal and flesh and blood. He can remember the time when, fifty years ago, he was a boy, and the tree a fine full bearing stem, full of bud and blossom and fruit; and thousands thronged from all parts to gaze on its ruddy ripening Orange burden: then gardeners came in the spring-tide to select the much-coveted scions; and to hear the tale of his horticultural child and sapling from the lips of the son of the white-haired Kempster. But nearly a century has elapsed since Kempster fell, like a ripened fruit, and was gathered to his fathers. He lived in a narrow cottage garden, in Old Woodstock, a plain, practical, labouring man; and with his bees and flowers around him, and his "glorious pride," in the midst of his little garden, he realised Virgil's Dream of the Old Corycian:—"Et regum equabat opes animis." The provincial name for this Apple is still "Kempster's Pippin," a lasting monumental tribute and inscription to him who first planted the kernel from whence it sprung. *Mickelwell Junior. Gard. Chron. April* 12, 1851.

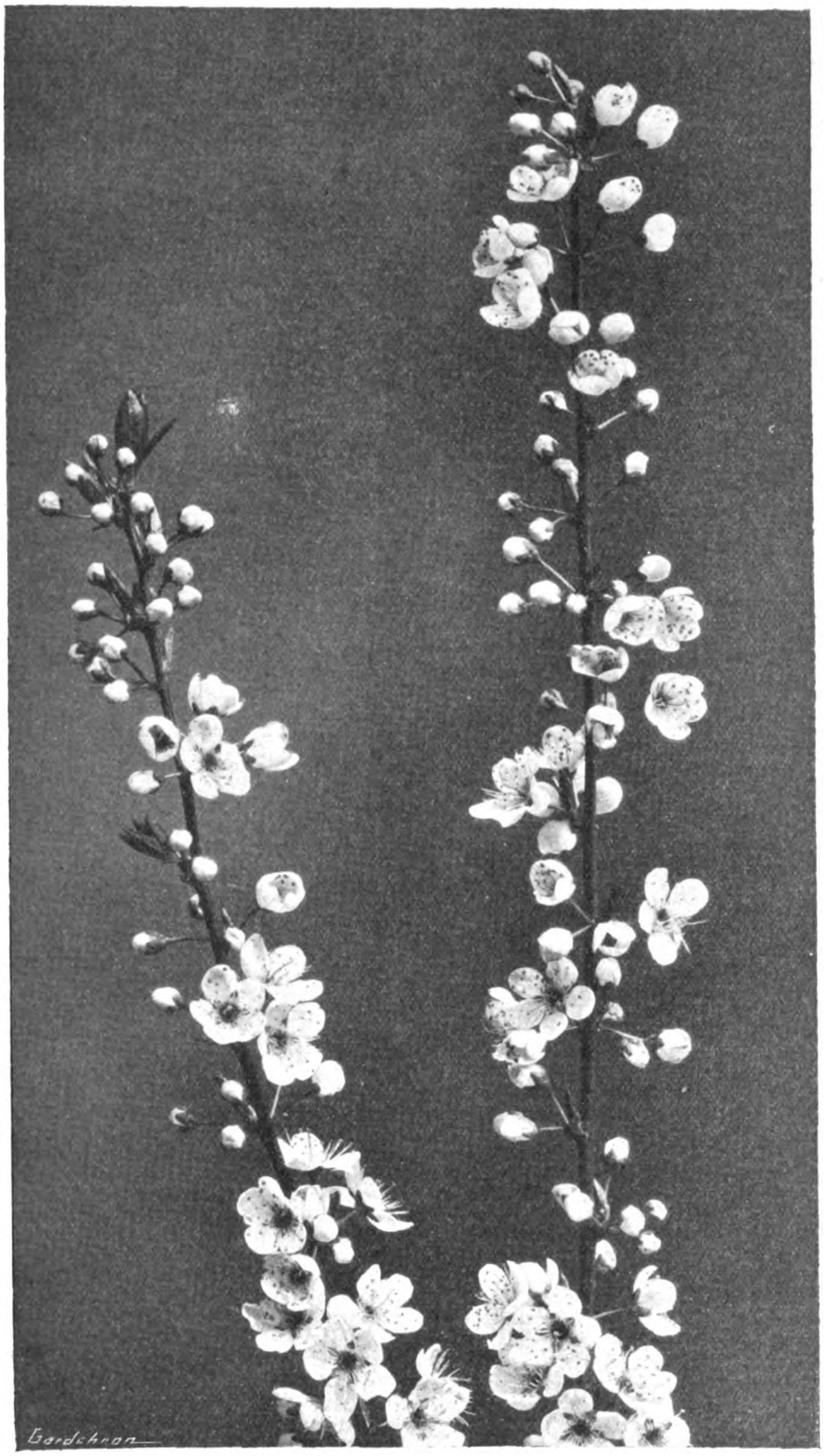

FIG. 128.—PRUNUS SALICINA; FLOWERING SPRAYS.
(see p. 266.)

Publication Received.—*Aristocrats of the Garden*, by Ernest H. Wilson. The Stratford Company, 234-240 Boylston Street, Boston, Mass. Price $5.00.

The Week's Work.

THE ORCHID HOUSES.

By J. Collier, Gardener to Sir Jeremiah Colman, Bart., Gatton Park, Reigate, Surrey.

Miltonia.—All cultivators of Orchids will derive great pleasure by noting how quickly the various species and hybrids are responding to the influence of the increased light and sun-heat. Many plants are growing freely, new roots are pushing rapidly through the soil and fresh flower spikes appear every day. Miltonias of the M. vexillaria and M. Bleuana section are among the many subjects that are developing freely, these being amongst the most popular Orchids in cultivation. Many are pushing forth flower-spikes from their partly-developed pseudo-bulbs, and at this stage every precaution must be taken against thrips, which, if not kept in check, will attack the tender flower buds, causing them to become deformed. The foliage should be sprayed at least twice on bright days, which will not only keep down thrips but will also be beneficial to the growth of the plants. The syringing should be done sufficiently early in the day for the foliage to become dry before night arrives. The plants should be fumigated mildly on frequent occasions with a reliable vaporising compound. If the flower spikes are not too far advanced, the plants may be dipped head downwards. once every two weeks, in Quassia extract at the rate of half-a-pint of the Quassia to two gallons of tepid water. The plants should be shaded from bright sunshine at all times.

Anguloa.—After a long season of rest many of these Orchids are developing new growths, and the present is a suitable time to examine and re-pot any plants that are not likely to flower. Those that promise to bloom should not be disturbed until the period of flowering is over. The most desirable species to grow embrace A. Cliftonii, A. Clowesii. A. Ruckeri, A. eburnea and A. uniflora. Anguloas are strong-rooting plants, and should be afforded a somewhat retentive compost, composed of two parts each of good, fibrous loam and peat or Al fibre, and one-part chopped Sphagnum-moss, with a liberal sprinkling of crushed crocks. In repotting reduce the ball of old soil, cut away all dead roots and remove unnecessary back pseudo-bulbs. Use clean pots, and press the compost moderately firmly about the roots, keeping the base of the plant a little below the rim of the pot. A few days after repotting give the plants a good soaking with water to settle the soil, but keep them rather dry afterwards until the roots are growing freely, when they will require a very liberal supply of moisture and also through the growing season. Anguloas thrive in a shady position in the intermediate house or in the warmer end of the cool division. During the season of active growth the foliage, and especially the undersides of the leaves, should be examined at intervals for the presence of red spider; if the pest is detected sponge the plants with a weak insecticide.

THE KITCHEN GARDEN.

By F. Streeter, Gardener to Lord Leconfield, Petworth Park, Petworth, Sussex.

French Beans.—Make the first sowing of French Beans in five-inch pots and raise them under glass for planting out on a warm border when all danger of frost has gone. Admit plenty of air to the house or frame in which the plants are grown when the weather is favourable, to secure as sturdy specimens as possible. Canadian Wonder Selected is still one of the best varieties.

Broad Beans.—Make a final sowing of Broad Beans out-of-doors and plant out seedlings raised in boxes. Where slugs are troublesome place a ring of finely-sifted cinders around the collars of the plants and mulch the rows with old Mushroom-bed manure.

Brussels Sprouts.—The young plants should be pricked out into frames before they become drawn. Admit plenty of air to the frames on all possible occasions. Another sowing may be made in the open to raise plants for the latest crops.

Leeks.—The final sowing of Leeks should now be made outside. Those raised early in the year have filled their pots with roots and should be transferred to larger receptacles. Keep the plants growing actively in a position near to the glass and remove the tips of the leaves.

Parsley.—Where this herb was sown in January and pricked out into boxes, the plants should now be hardened thoroughly preparatory to planting them in the open. Allow a space of six inches from plant to plant in well-manured soil in an open situation. Damp the leaves until the roots are re-established in the soil. It is sometimes very difficult to maintain a continuous supply of Parsley.

Winter Greens.—Sow sufficient seeds of each variety of winter greens for the demands of the establishment. Sow in firm ground and protect the seedlings from birds with netting.

Hoeing, etc.—Take advantage of fine weather to hoe as much ground as possible, even if no weeds are showing. This will greatly facilitate the work of keeping the garden trim and tidy throughout the season.

THE FLOWER GARDEN.

By F. C. Puddle, Gardener to Lord Aberconway, Bodnant, Taly-Cafn, North Wales.

Sweet Peas.—Plants which have been raised in pots or on turves in frames are ready for planting where they are required to flower. For exhibition purposes and for providing first-class blooms for cutting, the cordon system of training is usually adopted, but for flower garden decoration Sweet Peas are much more effective if the growths are allowed to develop naturally. Perhaps the most elegant effect is secured by planting them in circular clumps each of one variety, and staking them with twiggy sticks in the form of a pyramid. The ground in which they are grown should have been trenched previously, as liberal cultivation is essential to success. The circles may be marked out two feet six inches in diameter, and a little of the surface soil drawn to the edge to form a surrounding ridge. Each circle will accommodate from six to nine plants. If the plants are to be grown in rows, they should be set about six inches apart. In each case short, twiggy sticks should be placed around the plants immediately after planting. The tall sticks may be inserted when the shoots have almost reached the top of the short ones, for if placed in position too early the young plants are apt to become drawn and weak. If the shoots have not already been stopped, this should be done some days before planting takes place, or after the plants are established, to promote the development of strong shoots from the base.

Yuccas.—These stately plants are invaluable for garden decoration, for whether grouped on lawns, planted in the flower borders, or in sunny positions in the shrubbery, they give a distinguished note to the garden both in summer and winter. Yuccas may be planted at the present time; and the position chosen for them should be well-drained. After planting they are apt to lose some of their leaves and look like failing for a time; when this happens they should not be uprooted too readily, as they usually recover and make good plants by the end of the first season. The dwarfer Yuccas, such as Y. angustifolia, Y. Whipplei and Y. filamentosa, with its varieties, may be planted in the flower borders, but the taller-growing Y. gloriosa and Y. recurvifolia are perhaps most effective when grouped on the lawn. It occasionally happens that the stems of Yuccas are cracked or broken by the winter gales, and these fractured pieces make excellent material for propagating fresh stock. The tops may be taken off and placed in pots of sandy soil in a warm house, where they will soon develop roots. The stems should be cut in pieces, about one foot in length, and these split down the centre; the two halves should be placed cut side downwards in the bed of a close propagating frame. When the dormant eyes commence to grow they may be taken off with a small portion of the old stem as cuttings. Yuccas may also be propagated by division and by root cuttings.

HARDY FRUIT GARDEN.

By W. Auton, Gardener to Viscount Elveden, Pyrford Court, Woking, Surrey.

Fruit Prospects.—It is fortunate that the exceptionally cold snap commencing about the middle of March was not later, or irreparable damage would have been done to much of the fruit blossom. Pears, Plums and Cherries are now in full bloom, and if weather conditions are not abnormal we may expect good crops of these fruits. Efflorescence is particularly pronounced in such varieties of Pears as Beurré Alexandré Lucas, Beurré Baltet Père, Beurré Superfin, Clapp's Favourite, Conference, Doyenné du Comice, Louise Bonne of Jersey, Marguerite Marillat, Olivier de Serres, Pitmaston Duchess, Roosevelt and Williams's Bon Chrêtien, while Beurré Bosc, Beurré Hardy, Beurré Diel, Durondeau, Glou Morceau and Souvenir du Congres, although showing flowers much less abundantly, have ample for crops. Amongst Plums, abundance of flowers is evident on Bryanston Gage, Coe's Golden Drop, Denniston's Superb, Green Gage, Transparent Gage, Purple Gage and Victoria, with a moderate quantity on Belle de Louvaine, Czar, Golden Gage, Magnum Bonum, Primate and Prosperity. Cherries, both dessert and Morello are, as usual, abundantly laden with blossom. Apples are naturally much later in opening, but some of the earlier-flowering varieties are on the point of bursting their flower buds, with which nearly all varieties are well provided. Allington Pippin, Annie Elisabeth, Beauty of Kent, Bismarck, Braddick's Nonpareil, Cox's Orange Pippin, Hormead Pearmain, Lane's Prince Albert, King of Tompkin's County, Lord Derby, Loddington, May Queen, Monarch, Norfolk Beauty, Newtown Wonder, Ribston Pippin, Warner's King and Dumelow's Seedling (Wellington) are heavily laden, while among varieties showing moderate numbers of flowers are Beauty of Stoke, Duke of Devonshire, Ellison's Orange, Emperor Alexander, King of the Pippins, and Sandling.

Watering.—The total rainfall recorded in this district during March was only ·32 inch, and while 2·45 inches were recorded in February most of this quantity fell during the first half of the month. The period from mid-February has thus been one of extreme dryness, and as much late planting had to be done owing to previous inclement weather conditions, the problem of watering is one which needs very careful attention at the present time. Fruit trees planted against walls and fences, the favourable positions of which encourage early growth, will unquestionably need copious supplies of water, or many failures during the summer are likely to result. Trees planted in open positions, which were mulched immediately after planting, are not liable to suffer so quickly, but it is wise to verify the condition of the soil by examination. It must be borne in mind that late planting, necessitating the moving and turning of surface layers of soil, is in itself a cause of loss of moisture. In the absence of rain, and with no mulch to prevent loss by evaporation, the soil immediately in contact with the roots is liable to become excessively dry, and as a consequence fresh root development, which is essential to plant nutrition, cannot take place at a sufficient rate to supply the needs of the plant.

PLANTS UNDER GLASS.

By **John Coutts**, Assistant Curator, Royal Botanic Gardens, Kew.

Campanula isophylla.—This is an old favourite which one seldom sees in gardens at the present day although it is very useful as a pot plant. as well as for furnishing hanging baskets. It is readily propagated by means of cuttings rooted at this time. Grown in forty-eight-sized pots in a cool house it makes a useful plant for autumn decoration in the greenhouse. The shoots should be secured to a neat stake. The variety Mayii is perhaps more generally seen now than the type; the white variety is useful for grouping with the others.

Campanula fragilis.—This Campanula makes a useful basket plant for the cool greenhouse, and stock may be raised easily either from seeds or cuttings.

Saxifraga sarmentosa.—This plant is commonly used for furnishing hanging baskets in the cool greenhouse. The runners, with young plants attached, afford a ready means of increase at any time. This Saxifrage is also very charming and dainty when grown in forty-eight sized pots; for this purpose growth should be restricted to a single. strong rosette.

Saxifraga sarmentosa var. tricolor.—This also is a very beautiful plant, but by no means easy to grow successfully. Unlike the type, it does not succeed in a cool house, but requires a temperature of about 60° to grow it well. It should not be over potted as it does best when grown in quite small pots.

Humea elegans.—The plants comprising the earliest batch of Humeas should now be ready for placing in their flowering pots. If well-grown they will need nine-inch or ten-inch pots. This plant is generally regarded as being a difficult subject to cultivate, but if grown perfectly cool no difficulty should be experienced in its younger stages. When placed in its flowering pot, however, it needs very careful treatment as it resents disturbance at the roots and water must be very carefully afforded until the latter are well established in the fresh compost. Humeas are subject at this season to attacks of green fly, which must be combatted by fumigating the house lightly on frequent occasions.

FRUITS UNDER GLASS.

By **T. Pateman**, Gardener to **Sir Charles Nall-Cain**, Brocket Hall, Hertfordshire.

Ventilation of Fruit Houses.—The weather in April and May is usually very changeable, and the grower cannot be too careful in ventilating fruit houses. Periods of sunshine and shade alternating with heat and cold render it almost impossible to keep the temperature as one could wish. And it is during these two months of the years, when the young growths are tender that cold draughts must be avoided. By the time these remarks are in print the trees in most of the fruit houses will be in an advanced stage of growth, which will make the work of ventilation a somewhat difficult problem to deal with. During sudden bursts of sunshine strict attention must be paid to admitting or shutting out fresh air, for unless this is carried out promptly the trees or vines may receive a severe check which may be more noticeable at a later stage than at the present time. The night temperature is another detail which must be carefully dealt with. I strongly advise a fall of three or four degrees in the temperature rather than overheat the water-pipes, for this would cause an arid atmosphere, which is always harmful. Aim at ensuring a temperature which will be suitable for steady growth of the trees and vines. The houses should be closed as early in the afternoon as the aspect necessitates; nothing is better than solar heat to hasten the crops. When fire-heat is necessary, promote a moist atmosphere by damping the floors and bare spaces of the walls freely.

Thinning of Fruits.—This operation is an important detail in fruit growing, and if the cultivator is desirous of obtaining high quality fruits he must thin his crop judiciously. Over-cropping in Grapes, Peaches, Figs and Pears not only results in small, flavourless fruits, but tends to weaken the vines or trees for another season, whilst it may be the cause of Peaches dropping at the stoning period. Probably the cause of the Fig casting its fruits may be traced to the same source. No one is in a better position than the grower to determine to what extent the thinning of the crop should be carried out, but he should always aim at a moderate one if he wishes to preserve health and vigour in the trees. On the contrary, heavy cropping should be encouraged in the case of vigorous trees which often fail to set fruits freely, owing to the roots being in uncongenial soil and needing to be lifted. The work of thinning the crop should be carried out in the early stages, for postponement of this operation results in a waste of the tree's energies.

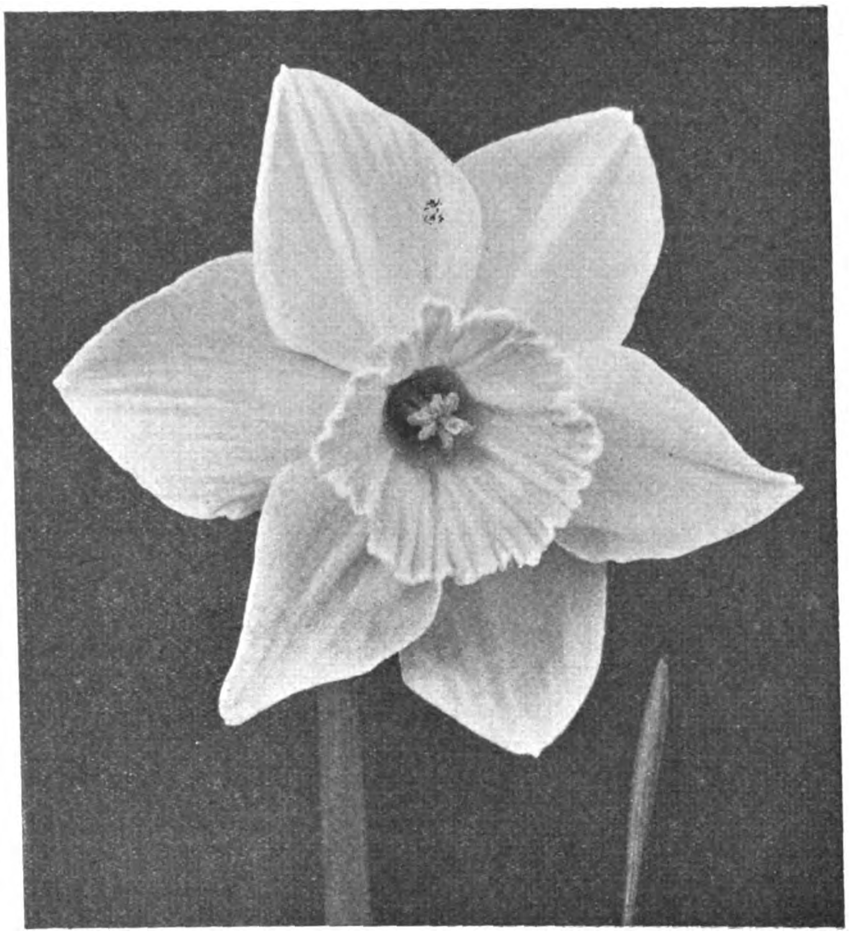

FIG. 129.—NARCISSUS MITYLENE.

R.H.S Award of Merit, March 23. Flowers white with primrose-yellow trumpet.

Shown by Mr. J. L. Richardson (see p. 241.)

FOR NORTHERN GARDENERS.

By **A. T. Harrison**, Gardener to the **Marquis of Ailsa**, Culzean Castle, Maybole, Ayrshire.

Asparagus.—In making new Asparagus beds the ground should be trenched deeply, manured heavily and, if necessary, well-drained, as nothing seems to injure the fleshy roots so much as stagnant conditions in winter. Older beds which were top-dressed last November will be greatly benefited by a dressing of agricultural salt at the rate of four ounces per square yard. In seaside gardens it is usually easy to obtain Seaweed for the gathering, and this makes an ideal top-dressing for Asparagus beds, as the potash and other salts it contains are washed into the soil by rains.

Pruning of Autumn-flowering Shrubs.—The pruning of such shrubs as Buddleia variabilis and its greatly improved varieties, B. v. magnifica, and B. v. Veitchiana, also Romneya Coulteri and Fuchsias, should now be proceeded with. Those enumerated and many other kinds which flower on the shoots of the current season should be pruned fairly hard in order to encourage the production of vigorous growths. Where Fuchsias grow freely and are used as hedges an annual trimming at this season is all that is necessary, but plants that have overgrown their sites may be cut down nearly to the ground, as they soon break into growth, and are all the better afterwards for this somewhat drastic treatment.

Violas and Pansies.—Cuttings of these flowers rooted last autumn and well hardened off, may now be planted where they are to bloom. The many varieties of Viola are among the most useful and floriferous of bedding plants, either for edgings or for using as carpeting plants. They are quite hardy, and where they are allowed to remain a second season without disturbance the flowers, although perhaps smaller, are produced in such numbers as to form an almost unbroken sheet of colour. Some soils do not suit the Viola, and where difficulty has been experienced the ground in which they are to be planted should receive a fairly heavy dressing of freshly slaked lime a few days previous to planting. Pansies, while not so useful as Violas, are well worthy of the time and attention necessary to produce good flowers.

TREES AND SHRUBS.

PRUNUS SALICINA.

As you have already had references to this interesting plant, I enclose a photograph (Fig. 128) of flowering sprays. I have found it very hardy and free-flowering here; indeed, it came through the bitterly cold winds and frosts of a fortnight ago quite unharmed. Of course, the beauty of the unopened pink buds cannot be seen in a photograph. The flowers are generally, although not always, in three's, which, I suppose, gave rise to the name of P. triflora, under which it was once known. I understand it is the parent of the so-called South African Plums. *R. C. Notcutt, Woodbridge.*

RHODODENDRON OREOTREPHES.

This beautiful Rhododendron, introduced from the Lichiang mountains by Mr. G. Forrest in 1906, is becoming more generally popular, and deservedly so, for it has many charming features. Though it is said to attain a height of twenty feet, its growth here is very slow, and quite small specimens of a couple of feet or so bear a profusion of blossoms.

The foliage of R. oreotrephes has a distinctly bluish tinge; the small, ovate leaves are leathery, glabrous on the upper sides, scaly beneath and very aromatic. The blossoms, each rather more than one inch across, are produced in spring in neat little clusters, and they are of a soft, warm, lavender tint that shows attractively against the green of woodland surroundings.

I find that R. oreotrephes is very amenable to culture in a free loam which is not very moist in summer, and it will grow well in partial shade. The habit of growth is somewhat rigid and bushy, yet distinctly elegant. Though evergreen, this species is apt to shed many of its leaves in winter, but as the new growths appear early the loss is soon made good. *J.*

SHRUBS AT NYMANS.

At the beginning of March nothing was more striking in these gardens than Rhododendron barbatum; the plant, twelve feet in height, was covered with trusses of its deep scarlet flowers. R. Nobleanum was equally effective, especially a large plant placed against a dark green background. R. fulgens was crowded with its rich red blossoms nestling in the rounded leaves which have brown felt on the under sides. R. Shilsonii was bursting its buds. R. oreodoxa had for a month past been the glory of the garden. All the trusses rarely open at the same time, and the bright pink buds add much to the effect of the rather pale pink colour of the open flowers.

In a sheltered corner a delightful colour scheme is produced by planting R. lutescens at the back of a wide border, R. praecox midway, with plants of Daphne Mezereon interspersed with a few specimens of the beautiful dwarf Corylopsis pauciflora, and among the taller plants a carpet of Erica darleyensis, extending forward to the path or turf. All these plants were in flower together, and their blooming may be expected to synchronise again in future years, but it is a matter of which one cannot be sure.

Pieris japonica seemed to be flowering exceptionally early this year, many of the clustered racemes being fully open in early March; appearing rather dingy from a distance, it is a flower that well repays closer inspection. Heaths have long been cultivated here, and they are so much at home that seeds from Erica lusitanica have been carried over a main road to a heathy field beyond, and there are now many good specimens already three feet in height. Bullfinches are particularly fond of the seeds, and often carry them for long distances plastered on the upper part of their beaks. Once, when planting a group of this Heath, we carpeted the surface with the Dorset Heath, Erica ciliaris. I notice that a rather sparse plant of E. lusitanica is filled in the centre with E. ciliaris, which has grown to a height of three-and-a-half feet, and looks in perfect health.

Viburnum Davidii is a disappointment; it grows vigorously, flowers profusely, attracts visitors with the regular, triple venation of its handsome leaves, but never bears the blue berries which are said to be its greatest beauty. Perhaps it is because we have only one individual plant; and no amount of vegetative propagation will alter the fact. Although a monoecious plant probably other individuals of the same species must be obtained to mate with it before fruit will be produced; my experience leads me to regard this as by no means an isolated instance among plants.

Eucryphia cordifolia and the hybrid E. Nymansay were in full growth when the early frosts set in. The latter is a very fast-growing plant, and so far as I can judge much hardier than E. cordifolia. Its long growths of two or more feet are matured with a sound bud at the apex. I have noticed that the tips of young plants of E. cordifolia were frozen, and in many cases destroyed.

Eucalyptus cordata, grey and rather gaunt against the sky line, was covered with its pale yellow flowers.

Scented plants are always welcome in the garden, and few are more fragrant than Chimonanthus fragrans and Lonicera Standishii. The scent of Daphne Mezereum is less refined, but it is carried on the wind for some distance. Daphne odora we have obtained from several sources; one form with narrow leaves is naturally procumbent, but it is trained against a wall. The flowers, which are rarely produced, are very sweetly-scented. Another, a strong grower, with broad, variegated leaves, appears hardier, but gives little return; a third, with medium-sized, slightly variegated leaves, or edged with white is an acquisition, though the plants are only small as yet, they have already flowered freely, not only at the ends of the shoots, but also on short spurs at the sides. Possibly this is the D. japonica described by Mr. Bean. The parent bush was about four feet in height, as much in width, and covered with blossoms which are very strongly scented. *J. Comber, Nymans Gardens, Handcross.*

BEDS FOR ERICACEOUS PLANTS.

I can assure Mr. Amsler (p. 240) that although we are on a lime-free soil, I am not unmindful of the insidiousness of lime, and I made the suggestion that the beds be made above ground level after observing unsuccessful attempts made in various gardens, where lime abounds, to cultivate Ericaceous plants by filling pockets with peaty soil below the natural ground level.

When writing my note I felt that I was venturing on controversial ground, and I had visions of correspondents stating that in recommending the bed to be made above the surface I was overlooking the fact that it would require frequent watering in a dry season, when possibly the lime-impregnated local water supply was the only water available. But I must confess that I little expected to be informed that it was necessary for success that the bed be placed on a conical mound faced with concrete.

The majority of Ericaceous plants require a cool, moist, rooting-medium, and I should imagine that the success of such a bed as Mr. Amsler recommends would largely depend on an abundant supply of lime-free water during the summer months. I am interested to learn why Mr. Amsler considers it necessary to make his concrete floor in the shape of a conical mound, for a fall of one in thirty-six would give adequate drainage; moreover, the bed would not dry so quickly.

I wonder if Mr. Amsler has tried the less drastic method of placing a moderately thick layer of ashes between the surface soil and the peat bed. *F. C. Puddle, Bodnant Gardens.*

RHODODENDRON AZALEOIDES.

This very old hybrid of doubtful origin is a shrub of singular beauty, and it is valuable inasmuch as it flowers in summer, usually in July. It is an evergreen, with long, narrow leaves of a full-toned glossy-green with glaucous underparts. The exceedingly fragrant flowers are large for the size of the bush. They are borne in copious clusters at the tips of the twigs, and in colour they are a pleasing combination of white and rosy-lilac.

R. azaleoides, which has also been known as R. fragrans and R. odoratum, is a very slow grower, and does not often appear to exceed five to six feet in height. It is compact and rigid in growth and makes a shapely, pleasing little bush. *J. N. W.*

PRUNUS TRILOBA FLORE PLENO.

Two very fine specimens of this beautiful shrub are flowering in the pleasure grounds at Coombe Court, Kingston. They are standard trees with six feet stems; the greatest diameter of the heads is about fifteen feet, and the height of the heads six feet above the point of budding.

Considering the great beauty of this plant when in flower it is surprising how seldom it is planted in gardens. It is somewhat tender on its own roots, and the best plan is to bud it on a very strong Plum stock for outdoor cultivation. The plants at Coombe Court were sadly overgrown with other things when Mr. Weaver took charge of the gardens about two years since, but they are improving under his careful attention, and the whole place has improved very much. Nicholson states in his *Dictionary* that this plant was introduced from China in 1857. It is well-known as a good pot plant for early forcing in a small state; in cold districts it requires the shelter of a warm wall if planted outside, but is evidently well suited to the south of England. *W. H. Divers, V.M.H.*

PRUNUS SUBHIRTELLA AUTUMNALIS.

I have been much impressed by the beauty of a fine plant of this beautiful Japanese Cherry, freely studded with its small, white flowers, which are flushed with pink. The blossoms have been lavishly produced over a period extending from the end of October to the middle of March. The unusually severe winter has not proved in the least detrimental to the plant. It appears to have received various names and was distributed under that of P. Migueliana, was subsequently called P. microlepis Smithii, and is now known as P. subhirtella var. autumnalis.

During cold weather, the flowers and buds appear to show more pink in their colouring than under more favourable conditions. The half-expanded, tender, green leaves in conjunction with an abundance of white-flushed blooms make a beautiful spectacle. *Ralph E. Arnold.*

WATER GARDEN.

LYSICHITUM CAMTSCHATCENSE.

Though by no means a new introduction, this splendid hardy Arum, with its impressive Banana-like foliage and huge spathes of butter-yellow, is still uncommon in gardens, but its name is now appearing in most good lists. I find it a first-rate waterside plant, quite easy and a free bloomer. It does not seem to increase by offset or kindred means, but it sets seeds bountifully, and these afford a ready means of propagation.

The heads containing the seeds fall to the ground in early autumn, or earlier, and soon become enveloped in a mass of transparent mucilage which looks exactly like a cluster of frog's spawn. At this stage the seeds, which resemble bottled Capers as much as anything, may be collected, washed and dried. I usually sow them direct in a pot filled with vegetable soil mixed with leaf-mould and sand, and sink the pot to the rim in the bog. In a few weeks the seedlings appear, and the following spring they are planted singly in a similar rooting-medium. *A. T. Johnson.*

ALPINE GARDEN.

AQUILEGIA FLABELLATA.

JAPAN has given us many lovely creations in the way of flowers, and numbers of these are deservedly great favourites of almost all gardeners. Yet there are some Japanese beauties which have never quite come into their own, and among these I should place Aquilegia flabellata, a bonny, dwarf Columbine, which probably owes a good deal of its comparative neglect to the supreme loveliness of the hybrid, long-spurred Aquilegias, which are so elegant and obtainable in such exquisite colours.

Compared with these A. flabellata is of modest appearance, but it has its metier in the garden, especially in the rock garden, where its dwarf stature and high charms of form and colour will be quite in agreement with those of the other plants.

There are some three varieties in commerce. What is known as the typical A. flabellata, grows about eight or ten inches high, and has stout, glaucous, prettily-formed foliage, and a large supply of flowers, which are thick and wax-like in their substance and large for the size of the plant. They have hooked spurs. The general aspect of the flower is pleasing, not only in respect to form, but in the colouring, which is of a delicate lavender hue, with the spurs and petals creamy white.

There is a pretty, wavy, white form listed as A. flabellata alba, and a dwarf one named A. f. nana. The best method of obtaining this Columbine is to purchase a packet of seeds and to sow them in April under glass, or in the end of that month and up to the end of June, in shallow drills in the open. Sow thinly and prick out the seedlings when they can be handled.

ERODIUM CHRYSANTHUM.

IT is the ambition of the majority of rock gardeners who know the exquisite Erodium chrysanthum to succeed with this rather capricious beauty. It is a great many years now since it was first cultivated in this country, and many were the discussions which arose regarding its proper requirements.

At that time a most able cultivator in the Emerald Isle pointed out to me a thriving plant in his rock garden and declared with almost apostolic dogmatism that it must have shade to make it succeed. His plant was certainly to all appearance in the best of condition, but his dictum regarding shade has been proved unsound, and the sucessful cultivator of to-day generally allows E. chrysanthum as much sun as possible, accompanied by a dry, thoroughly well-drained soil, and shelter from excessive wet in winter. Otherwise it is liable to decay at the base of the stem. This is, indeed, the cause of the demise of many of the Erodiums, but E. chrysanthum appears to be unusually liable to decay, and in wet districts I would advise covering the plant with a sheet of glass, supported about six inches above it, during winter.

As for the plant itself, it is a picture of loveliness with its charming tufts of silvery foliage, and, a little above the argent leafage, exquisitely hued flowers of sulphur-yellow, of wonderfully large size and of daintiest form. It is one of the plants in which the sexes are distinct on separate plants, so that it is necessary, if fertile seeds are to be obtained, to secure both male and female specimens. It may also be propagated by cuttings.

HELIANTHEMUMS AT WISLEY.

As an old admirer of Helianthemums, I have been deeply interested in the record of the trial of Sun Roses at Wisley, which appears in the *Journal* of the Royal Horticultural Society (vol. LI, part 1). Although no fewer than eighty-one named varieties, with nineteen seedlings, were tested, it is unfortunate that the named varieties were not even more largely represented, as many names which appear in the current catalogues are not mentioned in the report.

There are now so many varieties grown under names (and there are many named sorts indistinguishable from those with other names) that it is difficult to avoid the purchase, of synonymous plants. I venture to hope that an effort will be made to continue these trials with a larger representation of named plants so as to secure the elimination of at least some of the synonyms. However, what has been done is extremely valuable.

It is a little surprising to observe so few double varieties in the list. If this is to be taken as showing that the double varieties are not so popular with growers as the singles, it is not to be regretted, as the majority of the double varieties have a bad habit, their flowers being too drooping to show up well. There are some exceptions, of course, and of these the one grown at Wisley variously as Mrs. C. W. Earle, venustum coccineum flore pleno, Double Red, and Earlhamii, is a most valuable plant, which flowers for many months and shows up its flowers well.

It looks as if the title of Mrs. C. W. Earle has become permanently attached to this Helianthemum, but it is a very old plant in gardens, being formerly known as venustum plenum or amabile flore pleno. It came more prominently into notice from the reference made to the same plant in Mrs. Earle's *Pot Pourri from a Surrey Garden*, in which that talented lady wrote, " I have a double-flowered scarlet Rock Rose, not figured in any of my books and which I have rarely seen in gardens. It flowers persistently for many months."

In the Wisley list of double-flowered Helianthemums one named Jubilee is described with yellow flowers. Is this the true Jubilee, which should have flowers so large as those of the variety Mrs. C. W. Earle, and is of the same erect, or almost erect, habit ?

According to the Wisley report, Jubilee has flowers three-quarters-of-an-inch in diameter, and Mrs. C. W. Earle has blooms an inch in diameter. I have known Jubilee for many years, as I had it from the raiser, the late Mr. P. H. Normand, of Whitehill, Aberdour, Fife, with whom it originated as a sport from venustum plenum—as we called Mrs. C. W. Earle in those days. Another sport, with bronzy-yellow flowers, was also secured by Mr. Normand, and was shown by him in Edinburgh as Old Gold. These three—venustum plenum (or Mrs. C. W. Earle), Jubilee and Old Gold—are by far the best of the doubles, although a possible exception may have to be made of one being sent out as H. amabile album flore pleno, which is said to be a " very double white variety," but which I have not seen. *S. Arnott.*

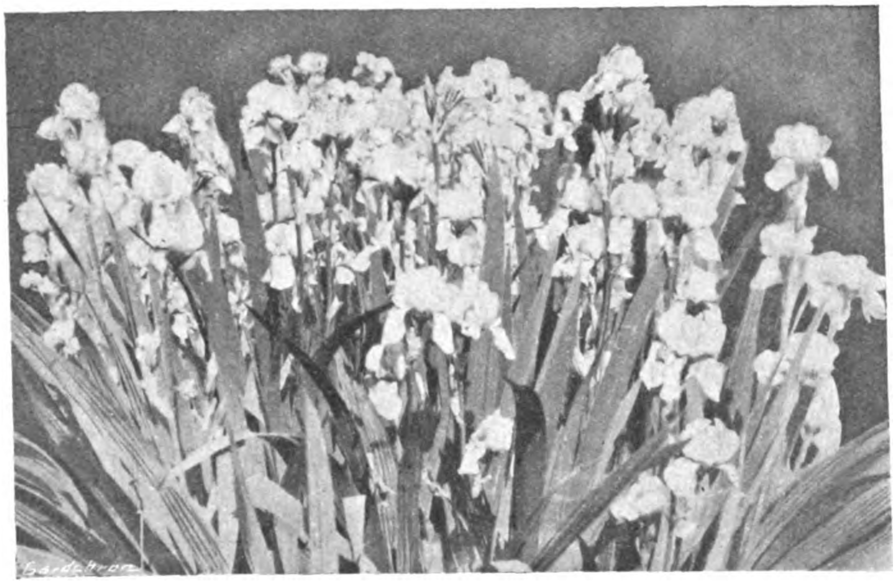

FIG. 130—IRIS QUEEN OF MAY.

NOTICES OF BOOKS.

ESSENTIALS OF SYSTEMATIC POMOLOGY

THE numerous books on systematic pomology which have been published in America during the last twenty years remind us how English pomologists have neglected this subject. The work before us[*] runs to some 270 pages, but can hardly be said to be the last word on the subject. It is presumably designed for the young student and as such will serve to stimulate his interest and, we hope, send him on to more advanced works, but even with this limited scope in view we think the author might have taken rather more pains in the arrangement of his subject and in verifying his evidence. Like many American authors, Mr. Brain is unable to leave out the commercial side of things. We are therefore presented with a picture (on page 43) of a roadside stand for selling fruit in the midst of a consideration of biennial bearing, and later on, with a chart of the market demand for Strawberries at Boston, and some pictures of attractive window displays during the National Apple Week.

Many chapters are followed by a list of questions for the budding student which we trust do not represent the intelligence of the average American undergraduate, many of them suggesting rather the elementary school standard. The author does not add anything to our knowledge, his keys given being borrowed from other authors, nor does he follow the historical development of the classification of fruits so far as it has developed. Where the history of fruits is touched it is extremely brief and a little study of European literature would have enabled him to amplify many statements and correct some errors.

IRIS GARDEN.

IRIS QUEEN OF MAY.

ALTHOUGH a very old variety, Iris Queen of May is still a desirable one to have in the garden. The accompanying illustration (Fig. 130) of a plant carrying over forty flower-spikes, gives some idea of its habit, and also of the freedom with which it flowers. The colour of the standards is lilac, and the falls are rosy-lilac.

This is a variety which may be obtained at a low price and is one of the finest to grow in masses.

Two other charming varieties, also suitable for massing, are I. pallida dalmatica, pale blue ; and Romany, a very richly-coloured variety, the standards being a very dark yellow and the falls deep red. The latter is of comparatively recent introduction. *Charles Hodgson, Acton Place Gardens, Sudbury, Suffolk.*

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[*] *Essentials of Systematic Pomology.* By Brooks D. Brain. Chapman and Hall, Ltd. Price 13s. 6d.

MESEMBRYANTHEMUM.

(*Continued from p.* 235).

6.—ARGYRODERMA, N. E. Br.

Stemless succulent perennials, tufted, or each plant consisting of a single growth. Leaves 2 (or when a new growth is forming 4, or under cultivation sometimes 6) to a growth or plant, opposite, short and thick, ovate, flat above, very convex on the back, firm, very smooth, white or whitish-green, not dotted. Flower solitary, terminal, sessile or subsessile, bracteate. Calyx produced above its union with the ovary into a short, cup-like tube, 6-8-lobed above. Petals numerous, free, linear, arising from the top of the calyx-tube. Stamens numerous, in several series, arising from the top of the calyx-tube, the uppermost erect or ascending, and the others abruptly bent down into the calyx-tube, forming a ring at the mouth of the tube, with a central opening. Stigma one, sessile, circular or elliptic, usually entire, rarely faintly crenulate. Ovary inferior, 10-24-celled; placentas on the floor of the cells. Capsule very shortly and broadly obconic, flattened at the top, with 10-24 valves and cells; each valve with a pair of stout, diverging, expanding-keels ending in awn-like or linear points, not winged: cells shallow, roofed with flexible semi-transparent cell-wings and the opening nearly closed by a large tubercle. Seeds numerous in each cell, minute, globose-ovoid, with a nipple at one end, smooth.—N. E. Br. in *The Gardeners' Chronicle*, 1922, vol. LXXI, p. 92.

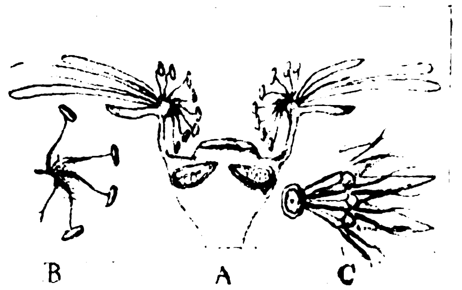

FIG. 131.—ARGYRODERMA TESTICULARE.

A, diagram of flower structure; B, stamens; C, three cells and two valves of the capsule.

Species 5, besides one that is doubtful; natives of Namaqualand and Van Rhynsdorp Division in South Africa. The type of the genus is A. testiculare, N. E. Br.

The generic name is derived from the Greek, *argyros*, silver, and *derma*, skin, in allusion to the silvery-white colour of the very smooth skin of the leaves.

Fig. 131 shows a sectional diagram of the structure of the flower of A. testiculare var. roseum, with some of the stamens, and a portion of an expanded capsule showing three cells roofed with cell-wings and the opening closed by a large tubercle, also two valves with their awned expanding-keels, all enlarged, but not to the same scale.

The previous description of this genus was made from material that I was not at liberty to dissect: that now given has been made from living flowers.

The only other known genus of the Mesembryanthemum Order having a similar type of structure and a circular, sessile stigma is Roodia, from which the shorter, ovate, white leaves, subsessile flowers, erect or ascending uppermost stamens and wingless expanding-keels of the valves of the capsule readily distinguish it.

The following is an enumeration of the species hitherto placed under this genus, together with description of another that may or may not belong to it, but seems nearly allied and is best placed here until it can be properly examined.

A. crateriforme, N. E. Br.—Growths with two leaves, according to description united at the base into a solid body 6-9 lines long, with their flat faces about 9-10 lines long and 15-16 lines broad, subrhomboid as seen from above, subtruncate at the apex (possibly in side view), thence rounded and slightly narrowed towards the base, obliquely and very obtusely keeled on the back, smooth, glaucous-green. Flower terminal, subsessile, with a pair of bracts up to 6 lines long at its base. Calyx produced above the ovary into a short cup-like tube, slightly constricted at the top, 6-lobed above, 2-2½ lines long, ovate, obtuse, four of them with membranous margins. Petals numerous, in several series, the outer about 7 lines long and ½-¾ line broad, the inner smaller, 2 lines or more long, cuneately linear, rosy-purple. Stamens 1½-2 lines long, white: the upper nearly erect, the others all bent down into the tube of the calyx; filaments bearded at the base. Disk (glands ?) annular, of many acute segments. Stigmas 14, scarcely ½-line long, radiately spreading and closely pressed upon the flat top of the ovary.—Mesembryanthemum crateriforme, L. Bolus in *Ann. Bolus Herb.*, vol. III, p. 165 (Jan. 1924).

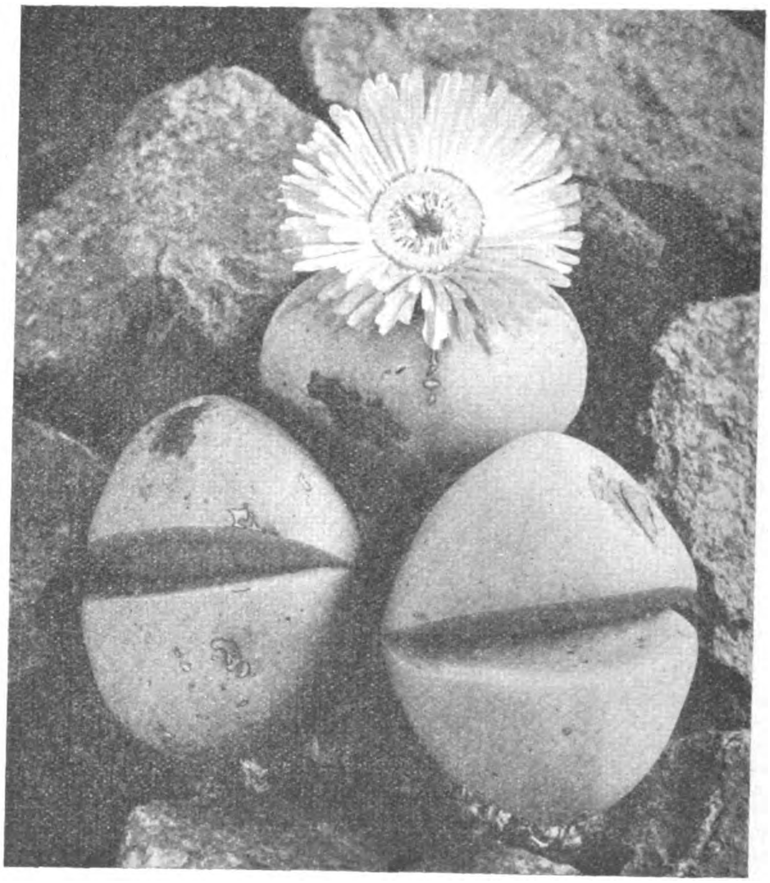

FIG. 132.—ARGYRODERMA TESTICULARE, N. E. Br.

Flowers white; natural size.

Van Rhynsdorp Division: Near Van Rhynsdorp, Watermeyer.

I have not seen this species, but according to the description given (translated above) it would appear to belong to this genus. The only discrepancy is that the stigmas would appear to be separate, instead of all united into one entire or faintly crenate sessile stigma. The capsule however, is not described, so may be different from that of this genus.

A. duale, N. E. Br., in *The Gardeners' Chronicle*, 1922, vol. LXXI, p. 105.

A. Margaritae, N. E. Br. — *Synonyms*, Mesembryanthemum Margaritae, Schwantes in *Monatsschr. f. Kakt.*, May, 1919, p. 55, with fig. Argyroderma roseatum, N. E. Br. in *The Gardeners' Chronicle*, 1922, vol LXXI, p. 105, fig. 52.

The name M. Margaritae was published unknown to me three years earlier than A. roseatum, and must therefore take precedence. Its native locality is near Warmbad, in Great Namaqualand.

A. necopinum, N. E. Br., in *The Gardeners' Chronicle*, 1922, vol. LXXI, p. 105. The lower stamens are all inflexed into the calyx-tube (see Fig. 134).

A. subalbum, N. E. Br., in *The Gardeners' Chronicle*, vol. LXXI., p. 93.

A. testiculare and its varieties **luteum, roseum** and **Pearsonii,** N. E. Br., in *The Gardeners' Chronicle*, 1922, vol. LXXI, p. 93. Having now dissected living flowers of this species (Figs. 132 and 133), which I had not been able to do previously, I find that the stamens are in several series and about 1½ line long, the outer or uppermost erect or ascending and all the others bent down into the calyx-tube, leaving a central opening: the filaments of all but the outer are pubescent at their base and white; anthers pale yellow.

As I have been informed that in South Africa the figure (here reproduced Fig. 135) of A. Margaritae (M. roseatum in *Gard. Chron.*, vol. LXXI, p. 105) has been mistaken by some as representing a young plant of A. testiculare. I would like to remove this error by stating that the figure quoted, I believe, represents an adult plant, which seen by the side of plants of A. testiculare could never by anyone be mistaken for that species. Apart from its different appearance, A. testiculare never has the rosy colour which A. Margaritae possesses, nor do the two species grow in the same region, A. Margaritae being a native of Great Namaqualand, while A. testiculare grows farther south, in Van Rhynsdorp Division. *N. E. Brown.*

(*To be continued*).

ORCHID NOTES AND GLEANINGS.

CALANTHE VESTITA.

THIS charming subject belongs to a class of Orchids suitable for an establishment where space under glass is limited. It is extremely useful for late autumn and winter decoration, and being easy to cultivate commends itself to both amateur and professional gardener alike. April is the best time of the year in which to start the pseudo-bulbs into new growth. A compost which suits them well is one made up of two parts good fibrous loam, a quarter-part of fibrous peat, a quarter-part of leaf-mould, and a quarter-part of dried cow manure, with some broken charcoal and sand. The best pots are those of six-inch size for large pseudo-bulbs, and five-inch for the small ones. The pots should be half-filled with crocks and the soil put in firmly, leaving about half-an-inch space below the rim for water.

The pseudo-bulbs should be seated in the compost and the base just covered. Any old roots remaining should be cut back to within an inch of the base. These will help to keep the bulbs in an upright position. After planting, a small stick should be added to give further support and the pseudo-bulbs tied thereto. When potting is finished, the pots should be placed on a shelf in a light position, where a stove temperature is maintained, and the thermometer never allowed to register below 55°. Some shading should be afforded on bright, sunny days after growth commences; also a little ventilation. Watering must be done carefully at all times. On bright days, at first, the soil should be just moistened on the surface, but when there are signs of new growth the plants should be given a gentle syringing twice a day. As the pots become filled with roots weak liquid cow manure in small doses, given once a week at first, and increased to twice or three times later, will be both beneficial to the plants and encourage lasting properties in the flowers.

When the flowering spikes show signs of opening, water should be given sparingly, and it should be withheld entirely when the foliage shows signs of decaying. When the flowers are three-parts expanded, and they are not required for a few days, the plants should be removed to a cooler and drier atmosphere, only watering them when necessary to prevent the pseudo-bulbs from shrivelling. When the flowering period is over and the foliage begins to decay, allow the plants a short period of rest by placing the pots on their sides until the foliage has quite died down; then, after shaking the pseudo-bulbs out of the pots, place them in a box, having first dusted the bottom with a handful or so of fine sand, and place them on a dry shelf in a warm house. Here they should remain until required for starting again.

Other deciduous varieties are C. Veitchii, C. Harrissii, C. Sanderiana, C. Cooksonii and C. Turneri. There are several others, but these will be sufficient to start with. *G. Barton, Sunnyside Gardens, Tansley, Matlock.*

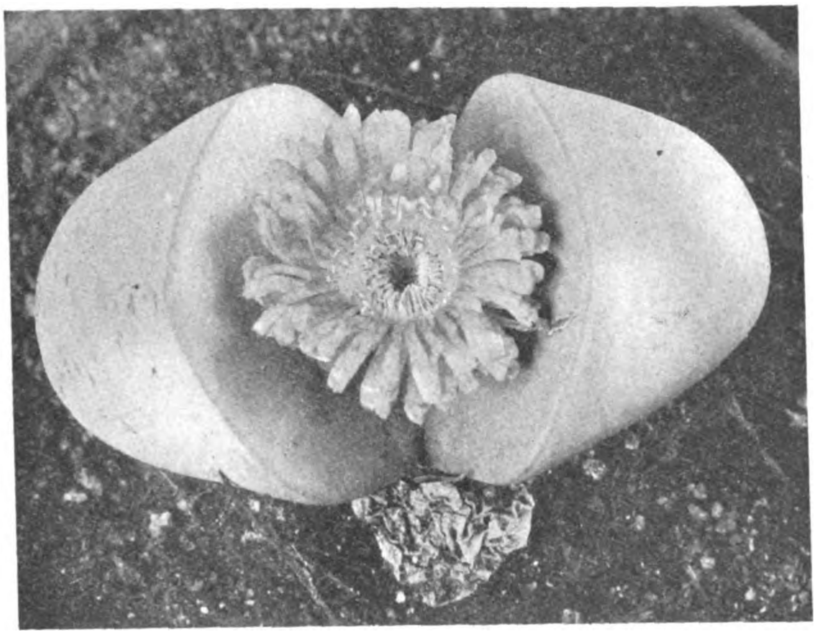

FIG. 133.—ARGYRODERMA TESTICULARE VAR. ROSEUM, N. E. BR.

Flowers bright magenta-purple; natural size (see p. 268).

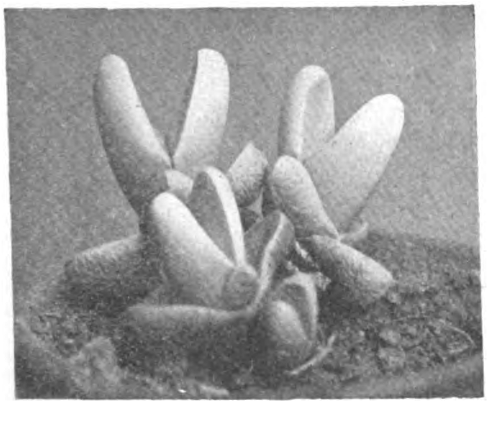

FIG. 134.—ARGYRODERMA NECOPINUM, N. E. BR.

Type plant; natural size, but is sometimes larger. Leaves white, flowers yellow (see p. 268).

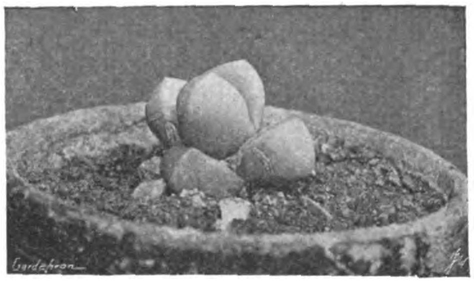

FIG. 135.—ARGYRODERMA MARGARITAE, N. E. BR.

(Syn. Mesembryanthemum roseatum. *Gard. Chron.* Vol. LXXI, p. 105; see p. 268).

INDOOR PLANTS.

PHYLLANTHUS.

PHYLLANTHUS nivosus, the most generally cultivated of the several hundred species that constitute the genus, is a deciduous, ornamental-foliaged shrub remarkable for the uncommon colouring of its leaves. Old plants should be pruned after being rested during the winter, shaken out, repotted, and started into growth in heat.

In the exubrance of the plants' early growth, the ovate, glaucous leaves, which are distichously arranged on terete stems, are a pea-green colour. As growth proceeds the leaves are blotched with white, or the whole leaf-surface may be white. Nicholson in his *Encyclopaedia* states that when well developed this Phyllanthus "has the appearance of a sheet of snow."

Cuttings of the mature shoots, some few inches long, root when inserted in heat. Young stock should be grown on to replace old specimens which lose vigour and tend to become leggy and bare at the base.

CISSUS DISCOLOR.

CONSIDERABLE heat and moisture during the plant's growing season are essential for the successful cultivation of this Javanese member of the Ampelidaceae. Like other tropical plants of a scandent habit it is of rapid growth, and quickly covers a considerable area. If planted out as undergrowth in a plant stove it may be allowed to ramble at will. When trained over a trellis or draping a pillar it requires constant attention in the matter of tying or the brittle shoots become tangled. The plant should be kept somewhat dry at the roots in winter, and before starting it into growth, the old, dead wood should be cut out, and the living portions neatly tied in position.

The propagation of this climber is simple; young shoots when two inches long, taken with a heel of old wood and plunged in a strong bottom heat, form roots quickly. Vigorous, young plants produce the finest and most highly coloured leaves. *Fred W. Jeffery.*

TECOMA SMITHII.

THIS useful, winter-flowering climber should now be propagated by means of cuttings, selecting young shoots for the purpose; they will root readily in a close case furnished with slight bottom heat.

During the summer the plants should be grown in perfectly cool conditions, in fact, they may, with advantage, be stood out-of-doors. Although the plants may be stopped by pinching the leading shoots, the best results are obtained when growth is restricted to a single stem. When the flower buds show, care must be taken to rub out all lateral growths that develop below the inflorescence: if they are allowed to develop the flower buds will drop off. *J. Coutts.*

BORONIAS.

AT this time of the year Boronias are particularly beautiful, and none more so than the quaintly-coloured but deliciously fragrant B. megastigma, which was introduced from Western Australia in 1873.

The rosy-carmine flowers of B. elatior are far more showy, and if their fragrance is not so powerful as that of the flowers of B. megastigma, it is very pleasant. B. heterophylla is another charming plant with bright red flowers.

These three species are fairly well-known, but a few others are worthy a place in any collection of indoor plants. The pink B. Drummondii, of which there is a white form, and the rose-coloured B. alata, are both pretty plants, while others, rarely seen, include B. denticulata, B. ledifolia, B. crenulata, and B. pinnata.

Boronias thrive in a mixture of peat, loam and sand, or they may be grown in pure peat, mixed with sand and charcoal. Efficient drainage is very necessary, for stagnation at the roots is fatal to success, as it is to so many of these old-time plants.

Boronias may be propagated from cuttings made of the young growths or from those of half-ripened wood. *Ralph E. Arnold.*

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THE BOTANIC GARDEN AT TJIBODAS, JAVA.

THIS garden, a branch-establishment of the Buitenzorg Botanic Gardens, is situated on the slopes of the volcanic Mount Gedeh, at an altitude of about 4,500 feet. It lies about sixty miles from Buitenzorg, and is reached by train to Tjandjoer, from which station a motor car drive of about one hour brings one to Sindanglaja. From the latter place a footpath leads uphill to Tjibodas or "white brook," which is about an hour-and-a-half's walk distant.

On entering the garden a curious odour greets the visitor; this is caused by a kind of grass, Melinis minutiflora, Beauv., which grows along the side of the path. A little way beyond the entrance a fine view is obtained over the whole garden. In the foreground is a little lake, with white swans, and surrounding this are wide lawns, dotted here and there with groups of Conifers and other handsome trees (Fig. 136). In the background stand the mountains, bush-clad almost to their summits, the whole making a picture, the equal of which one may travel far to find.

Across the lawn, by the main path, is a little stone-paved avenue, planted on both sides with Araucaria Cunninghamii, Ait., and A. Bidwillii Hook., commonly known as Richmond River or Hoop Pine and Norfolk Island Pine. These Araucarias, natives of Australia, were imported many years ago, and have now grown into very tall trees, some having a diameter of three feet, at three feet from the ground. The boughs hang very low, and the intense shade makes the avenue a little gloomy in the rainy season. Near the end of the path stands the resthouse, with the house of the Assistant-Curator on the left (Fig. 137), and a little further away is the spacious laboratory (Fig. 138).

The garden, which previously had been used as an experimental plot for Cinchona, was founded in 1866 by Mr. J. E. Teysman, at that time Curator of the Buitenzorg Botanic Garden. It is set apart for such plants as are unable to withstand the warmer climate of Buitenzorg; more especially for those which are collected in the higher regions of our own colony. It is also used for those imported from sub-tropical regions for economic or ornamental purposes.

The most important part of the garden, however, is the forest-reservation, especially that portion which immediately surrounds the garden. It is real virgin, tropical, mountain jungle, through which paths have been laid out. It was Dr. Koorders who first conceived the idea of naming and labelling some hundreds of the more important trees in this reserve. These labelled specimens are scattered over an area of about 800 acres. It is a piece of work which has been of the greatest assistance to botanists who have come to study the tropical mountain flora of this country, and so much has it been appreciated, that in recent years we have had to extend the work considerably, and now have upwards of 400 such named plants. One small portion of the forest has been set apart for herbs, mostly from the adjoining forest. This method of naming specimens has been of great assistance to visiting botanists, who are thus enabled to become acquainted with our mountain flora before they actually begin their expeditions into the jungle. The entire forest-reservation reaches to the peak of the Mount Pangerango (9,068 feet), and to the summit of the Mount Gedeh (8,886 feet), and covers an area of several thousand acres.

The resthouse was built in 1891 and contains four bedrooms, a dining-room and a sitting room. It is reserved for visitors who come for scientific purposes; the well-furnished laboratory is also for the use of scientific workers.

Opposite the resthouse two curiously shaped trees, each standing about twenty feet high, bear a ball-shaped crown, consisting of long, slender, stiff, grass-like leaves (Fig. 140). The trunks carry the remains of the old leaf-stalks, and between these oozes out a kind of resin, used by our natives as a medicine for certain skin diseases.

These are specimens of Xanthorrhoea Preissii, Endl., natives of West Australia, where they grow abundantly in wet places, such as the Swan River Valley. They are commonly called "Grass Gum trees" or "Nigger Heads," the crown having the appearance of a bunch of grass or a native's head. On the same plot are some fine examples of Yucca, Cordyline, Dasylirion, and a big plant of Doryanthes Palmeri, W. Hill, the latter also a native of Australia and a very decorative garden plant. A little further to the left grows a curious plant from Chili, Colletia cruciata, Gill. et Hook. f.; at first sight this appears to be a dead,

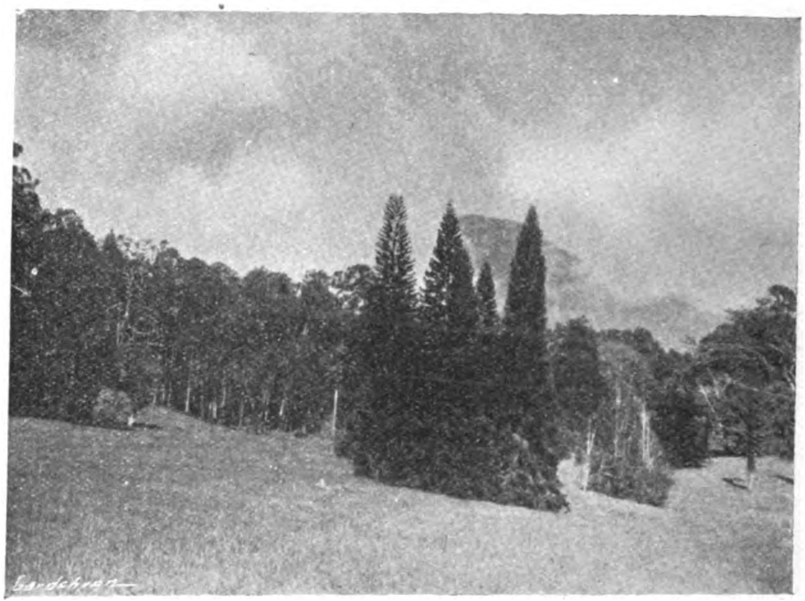
FIG. 136.—TJIBODAS BOTANIC GARDEN, JAVA: LAWN AND CONIFERS.

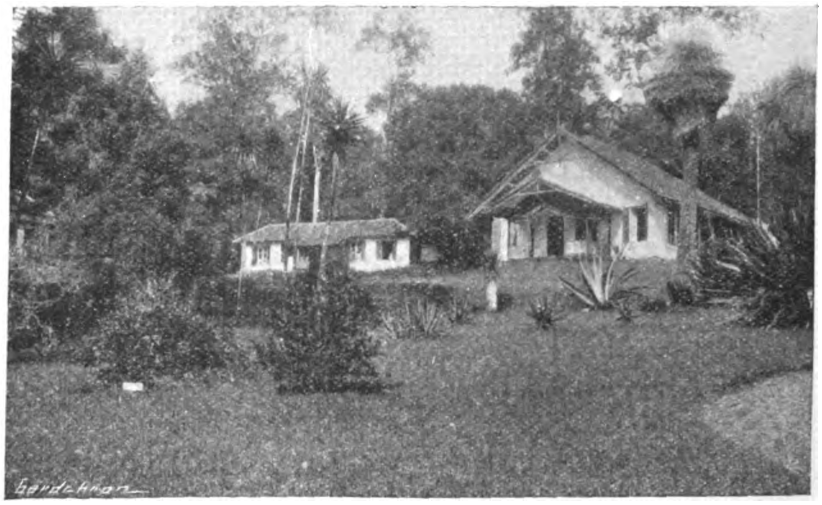
FIG. 137.—TJIBODAS BOTANIC GARDEN: THE REST HOUSE.

spiny shrub, but on looking closer it is seen to be alive and even bearing little, white, sweetly-scented flowers.

On the same side is the entrance of the Fern and Orchid garden containing very many fine Tree Ferns and Orchids, the latter growing chiefly on the stems of a native Alsophila, which grows abundantly on the mountain slopes of Java.

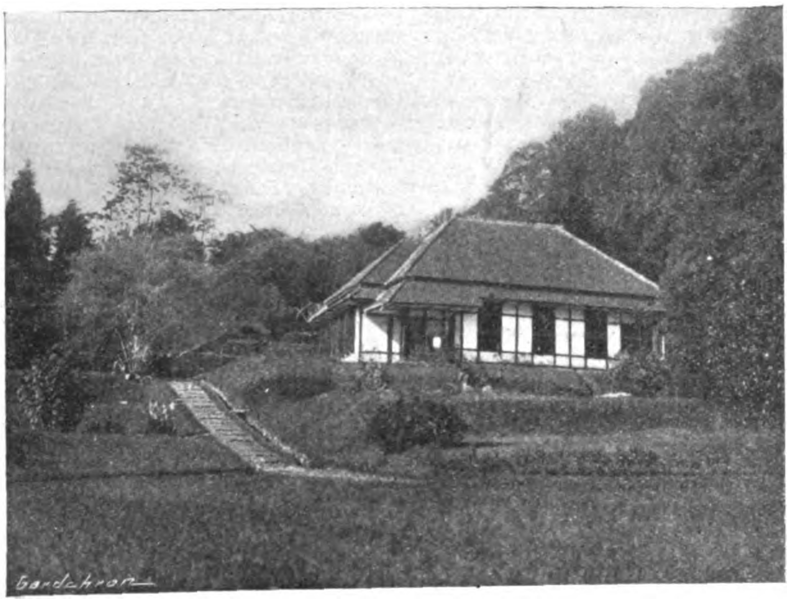

FIG. 138.—TJIBODAS BOTANIC GARDEN: THE LABORATORY.

A plant well-known in European gardens, Cobaea scandens, Cav., grows along the edge of the forest. This climber, introduced many years ago, has run wild, and now covers with its violet and yellowish-white flowers all the shrubs and smaller trees which grow along the margin of the big bush.

From near the little summer house an unobstructed view is obtained over the lower garden, with the mountain group in the back-ground (Fig. 139). Groups of Casuarina, Araucaria, Cupressus and Pinus give the landscape an European character, as also does a little Pine wood (Fig. 141), which contains many interesting and little-known species of Pinus. Amongst these are Pinus Montezumae, Lamb., from the Himalaya; P. insularis, Endl., from the Philippine Isles; P. canariensis, C. Sm., P. australis, Dum-Cours., P. palustris, Mill., from north America, and several others.

Beyond the Pine wood is a group of various species of Eucalyptus, mostly natives of Australia. They are magnificent trees running up to over one hundred feet in height, and carrying their branches far above the surrounding growth. This collection contains specimens of Eucalyptus regnans, F. v. Muell.; E. saligna, Sm.; E. capitellata, Sm.; and E. maculata, Hook. f., var. citriodora, V. Muell. From the leaves of the last-named species an oil is distilled, the smell of which strongly recalls citronella. Other fine Eucalyptus growing here include E. corymbosa, Sm.; E. eugenioides, Sieb.; E. erythronema, Turcz.; E. microtheca, F. v. Muell.

A fine collection of Japanese Bamboos next attracts attention; some, such as Phyllostachys sulphurea, A. et C. Rivière, have yellow stems; others, such as Phyllostachys nigra, Munro, have black stems. In Japan most of these Bamboos are used for basket work and walking-sticks, but in Java they only serve for ornamental purposes. Beyond these lie the flower-terraces, where different varieties of flowers for cutting and garden purposes are cultivated. Near by is a little water garden containing several small ponds wherein goldfishes live their quiet life and Water Lilies and other aquatic plants grow.

The work in the gardens is done by Sudanese coolies, who live in an adjoining kampong. They are a good type of labourers and give no trouble.

The most important part of the garden is, as already mentioned, the forest-reservation, which is entered by several tracts. From these tracts bye-paths lead to labelled trees which cannot be seen from the main track, thus enabling every tree to be studied individually. The visitor who for the first time enters such a tropical jungle, gets a wonderful impression of the immense variety of the vegetation. Trees, shrubs, herbs, lianes and epiphytes make together a dense, impenetrable jungle, and the newcomer is overwhelmed by the magnitude of the task before him, ere he becomes acquainted with the various species here represented. *P. Dakkus, Curator of the Botanic Garden, Buitenzorg, Java.*

(*To be concluded.*)

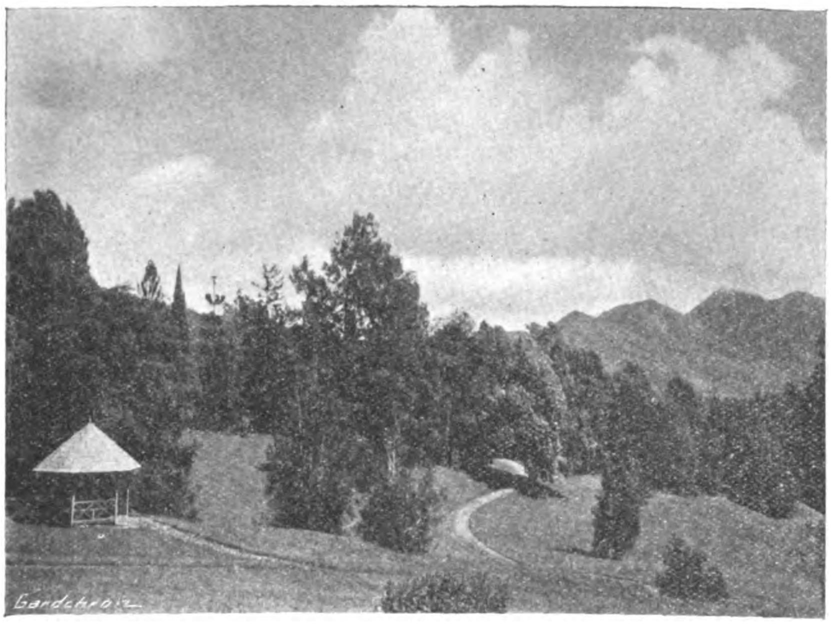

FIG. 139.—TJIBODAS BOTANIC GARDEN: VIEW IN THE LOWER GARDEN.

A DISEASE OF TULIPS AND IRIS RETICULATA.

The disease of Tulips known as "fire," and caused by the fungus Botrytis tulipae, occurs commonly in this country. The disease causes a severe blight of the foliage and a rot of the bulbs, on or in the attacked parts of which the black, resting bodies, or sclerotia, of the fungus are found. This particular disease is restricted to Tulips. It has been investigated by Klebahn in Germany, and Hopkins in the United States.

Another disease of Tulips and of Iris reticulata in this country has recently come to my notice, and as the symptoms are apt to be confused with those of the disease caused by Botrytis tulipae, it seems desirable to make brief reference to it, especially as it has only occasionally been recorded in England. This second disease is also caused by a fungus, Sclerotium (or Rhizoctonia) tuliparum. It has also been investigated in Germany by Klebahn, and in the United States by Whetzel and Arthur.

Tulips or other bulbous plants affected by this disease may be either completely destroyed below soil level, or, more frequently, they put forth shoots which appear above the ground, but which are dwarfed and malformed. Such bulbs practically never flower. Upon examining a diseased plant the resting bodies (sclerotia) of the fungus will be seen clinging to the neck of the bulb, and the part of the shoot below soil level. The sclerotia are densely entangled with the soil, and the parts of the bulb in their vicinity are rotten. The sclerotia are white when young, then brown, and finally brownish-black. The vary from one-tenth-of-an-inch to one-eighth-of-an-inch in diameter. In the case of this disease infection almost invariably proceeds from the soil by the formation of strands of mycelium from sclerotia already therein, whereas with the disease caused by Botrytis tulipae infection is often carried by sclerotia which are already present on or within the bulb scales. Another important difference between the two diseases is that no spore stage is known in the life history of Sclerotium tuliparum; whereas the "fire" disease of Tulips in the leaf-blight stage is commonly spread by spores. The structure of the sclerotia in the two fungi is also different, those of Botrytis tulipae being provided with a distinct rind which is practically absent in those of Sclerotium tuliparum.

Owing to infection primarily occurring through the soil in Sclerotium tuliparum, ground which

has already been found to be contaminated should not be used for bulbs for three years, as it has been shown that the sclerotia or resting bodies can remain alive in the soil for at least this period. Hyacinths, Daffodils, Scilla siberica, Fritillaria Imperialis and Iris hispanica, in addition to Tulips, have all been found to be attacked by this fungus, but there seems to be no previous record of Iris reticulata being attacked by it.

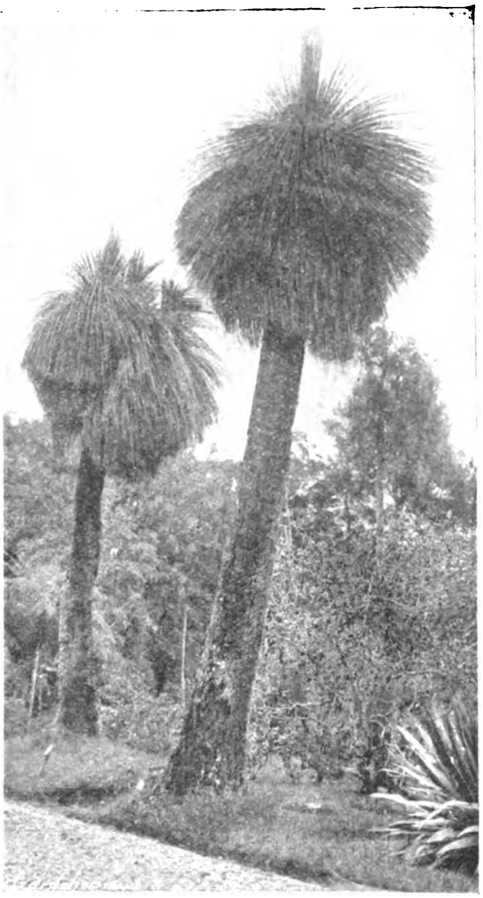

FIG. 140.—TJIBODAS BOTANIC GARDEN: GRASS GUM TREES.
(see p. 270).

The diseased Tulips (Tulipa gesneriana var. major), and Iris reticulata were growing in beds in the same garden in Cambridge. The bulbs of both were lifted last year and replanted in the same beds. In the case of the Tulips the disease was present to a slight extent last spring, but it has greatly increased this year. Some of the bulbs of Iris reticulata were removed to fresh ground last autumn; all these grew into healthy plants, but most of those which were put back in the same soil have been badly affected by the disease. *F. T. Brooks, Cambridge.*

REMINISCENCES OF TWO FAMOUS NURSERIES.

(Continued from page 250).

William Perry, Rivers' old foreman, had died, and he had been so many years in the nursery that his death made a great change in the old system. He used to pay the men and do a great deal which in most places is left to the office staff. Much of this extra work was now thrown on me. The business was also growing steadily, for the new system of fruit-growing was making headway, and we had to add large areas of glass from time to time.

On this occasion, I stayed ten years with Messrs. Rivers. One day, Mr. Manning, Messrs. Veitch's manager, came down to Sawbridgeworth to buy Orange trees. He had dinner with me, and before he left had induced me to go back to Chelsea. When I arrived, one of the clerks I knew very well said, "Sorry for you, you'll not retain this situation a year."

He was wrong, for I was there five years, but it certainly was a most exacting job. Veitch's nursery was the mecca of gardeners, and everybody in the horticultural world went there. One of the things we did was to supply gardeners to anyone who wanted them, and they were always known as Veitch's men. If they left one place, they came to us to find another, and we kept a most elaborate record of each man's doings. In the last year I was there, we filled 399 places, sending men all over the world.

The Chelsea nursery was one of the show places of London, and all sorts of people came there. Some while before he died, the Prince Consort was frequently in the grounds with his children. One day, an appointment was made for the Princess of Wales (Queen Alexandra) and the Crown Princess of Prussia (Empress Frederick) to see the nurseries, and elaborate preparations were made. A special tea service was procured for the party, and the German Ambassador was present to receive the royal ladies.

Everything was in readiness, when Mr. Manning said to me, "Camp, there are two ladies coming in; will you get them out of the way before the Royalties come?" I went up to the ladies and invited them to see the gardens. They said they would be delighted, so I took them off and showed them round. They were very pleased with everything, and we had been together for half-an-hour when someone came in a great hurry to take charge of them. They were the two royal ladies for whom the preparations had been made! The Princess had driven up in a chaise with only a page boy in attendance, and he had been told to take the vehicle out of the way while the ladies walked quietly in at the entrance.

One of the last shows I attended in charge of an exhibit was the International Fruit Show, held early in the war. There I met Sir Harry Veitch, who told me he was the last survivor of the committee of the previous show, fifty years before. I reminded him that the first time I went to Veitch's was during that show, and he distinctly recalled the time when we did invoices late at night.

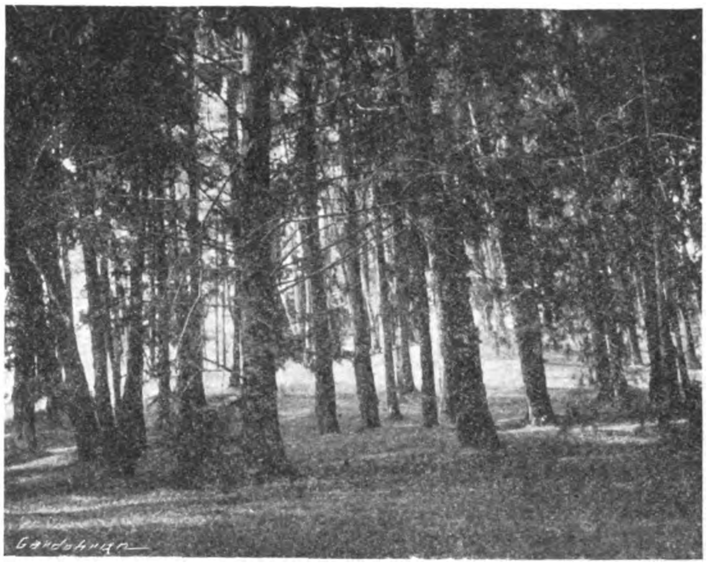

FIG. 141.—TJIBODAS BOTANIC GARDEN: THE PINE WOOD.
(see p. 271).

Although Veitch's was a difficult job, I do not suppose I should have left there on my own initiative, but Francis Rivers, who, now that his father was dead, was in sole command of the nursery, sent his brother to tell me that their manager had left suddenly, and they were in a fix. He invited me to come back to them as manager. This was in 1882, and was the last change I made; from that time I became practically identical with the firm of Messrs. Rivers and Son.

* * * * *

I learnt at Chelsea that the great secret of success in a nursery business is to exhibit, and I soon began to do so, although Francis Rivers shook his head at the expense it involved. It was not until a year had passed, and he discovered that the turnover had leapt up £600 in one month, that he realised the enormous advantages of showing. I well remember the first time I staged an exhibit. It was at an evening fete in the old Kensington Gardens, behind the Albert Hall, where I showed pot trees furnished with ripe fruit for the first time. It was a great success from every point of view, and from that time we exhibited at all the London shows.

Our first exhibit at the Temple created a great sensation. We had fifteen trees of Early Rivers' Nectarine, arranged on the table in three rows of five, with Orange bushes in bloom between them. The perfume was wonderful and everybody was attracted. The Press notices were most eulogistic. One reporter wrote, "Wherever he went about the grounds, people were saying, Have you seen Rivers' Nectarines?'" There were fine fruits on each tree, and up to then the variety was quite unknown. Each fruit was sold at 3s. 6d. We went to every Temple Show after that, and when the R.H.S. decided to give a Gold Medal to the most meritorious group in the show, I determined to win it. I exhibited thirty trees of the same Nectarine; in all they carried 500 fruits. The sectional judges combined to agree on the award, and they were unanimous in giving it to this display. The other exhibitors challenged the decision, and the Council was compelled to issue a statement justifying the award, which they did on three grounds. First, that it was a new Nectarine, second, the fine condition and cultivation of the trees, and third, the skill in getting them safely to the show over thirty miles, by road. Lord Rothschild bought all the fruits, and sent them as a birthday present to Queen Victoria.

We were awarded the R.H.S. Gold Medal year after year, while the show was held in the Temple Gardens. Queen Alexandra was a constant visitor there and she always came direct to our exhibit. Old hands at the show used to say, jokingly, that she was attracted by my white head (my hair went white at thirty), but one day, Sir Trevor Lawrence, who always conducted the Queen round the exhibition, came and told me she had said, "I never see Rivers' Nectarines, but I want them." Lady Faudel Phillips, who happened to be standing by, said, "Why don't you send her some?" I acted on the suggestion, and sent a basket to the Palace. It was acknowledged by Miss Knollys in a note, saying how much the Queen had enjoyed the fruit. *William Camp.*

(To be concluded.)

THE ORDER OF FLOWERING AND FERTILISATION OF HARDY FRUITS.[*]

(*Continued from p.* 255)

Cherries.

The study of the flowering and pollenation of Cherries is perhaps of even more importance than that of the other fruits ; to start with, all the varieties of sweet Cherry are either absolutely self-sterile or self-fruitful to a very small extent ; more varieties are inter-sterile than in the other fruits : this was discovered in America and has more recently been found the case in England by Mr. M. B. Crane, at the John Innes Horticultural Institute, Merton, Surrey.

Many Cherry growers find that their predecessors have made mistakes in their plantings : (1) by planting large blocks of one variety, or (2) by planting two varieties together which do not flower at the same time, the one being almost out of flower before the other begins ; or (3) by planting together varieties that do not cross-pollenate, *i.e.*, are inter-sterile.

In former days a grower planted many varieties in his orchard and the crop was fairly regular, especially if there were sufficient bees in the neighbourhood ; more recently the fruit farmer has often chosen a specially good sort, and planted it in large quantity alone. For example, Early Rivers has been often planted in large blocks, because where it crops well it is the best paying variety of Cherry ; ten or more rows of this variety have been frequently planted without any other variety ; as a consequence of this, the outside row, if it adjoins another suitable variety may crop very well, the next row yields less, the third row but little, and the centre of the block bears hardly one-tenth of the crop which the outside row yields, is quite unremunerative and barely repays the cost of picking.

Varieties of Cherry and suggested Pollenisers to inter-plant or re-graft with.

Early Rivers : Baumann's May, Elton, Black Heart, Waterloo.
Baumann's May : Early Rivers.
Elton : Knight's Early Black, Black Eagle, Early Rivers, Frogmore.
Circassian : Early Rivers, "Baumann's May."
Turk : Early Rivers, Elton, Governor Wood, Circassian, Napoleon, Frogmore.
Governor Wood : Elton, Napoleon, Early Rivers.
Knight's Early Black : "Baumann's May," Waterloo, Emperor Francis, Black Eagle, Roundel, Frogmore, Napoleon.
Victoria Black : Frogmore.
Black Eagle : Turk, Amber Bigarreau, Elton.
Roundel : Amber Bigarreau, Florence, Napoleon.
Frogmore : Amber Bigarreau, Turk, Governor Wood, Roundel.
Waterloo : Amber Bigarreau, Circassian, Napoleon.
Napoleon : May Duke, Webb's Black, Governor Wood, Amber Bigarreau, Frogmore, Florence.
Amber or Kentish Bigarreau : Frogmore, Turk, Roundel.
Florence: Waterloo, Napoleon, Amber Bigarreau.
May Duke : Late Duke, Black Eagle, Kentish Red, Morello, Napoleon.
Flemish Red : Kentish Red, and vice versa.
Morello : perfect alone.

Morello and the little Wye Morello are perfectly self-fruitful. Kentish Red is self-fruitful to the extent of about four per cent ; Flemish Red is about ten per cent. self-fruitful

The varieties that Mr. Crane finds inter-sterile should not be planted together in an orchard without some other variety. The varieties found to be inter-sterile are :—(1) Early Rivers, Knight's Early Black, Bedford Prolific, Black Tartarian and Black Eagle ; (2) Napoleon and Emperor Francis ; (3) Frogmore and Bigarreau de Schrecken.

Insect Visitors to Fruit Blossoms.

Although these observations are rather crude and not as precise as an entomologist would make them, yet they give some useful information.

It is found by those who have carefully studied the subject that the bee family includes the most valuable pollenisers of fruits, these insects being specially well adapted by structure and habit ; they are hairy and thus carry pollen, they also have the habit of keeping to one class of plant when away from their nests or hives ; thus if a bee starts on Forget-me-not it will continue visiting this flower ; if it starts on Apple, it will for that journey continue visiting Apple blossoms. It is chiefly in the hedge banks and woods that the wild bees make their nests ; when wire fences replace hedge rows and cultivation takes the place of grass land they lose their homes and decrease in number.

Whilst the bumble bees and little wild bees are valuable pollenisers, in many cases where there is a large acreage of one kind of fruit, the work required is out of proportion to the number of wild bees, over which man has very little control, hence the value of the hive bee, of which man can regulate the numbers.

NOTES ON INSECT VISITORS TO FRUIT BLOSSOMS AT WYE, KENT.

	Hive Bees	Bumble Bees	Small Wild Bees	Blue Bottle Flies	Other Flies	Beetles	Ants	Earwigs	Other Insects	Dates of Observation.
Almond	6	1	.	.	.	.	.	.	.	March 2 to March 30.
Peach	9	6	.	2	.	1	.	.	.	March 14 to April 15.
Pear...	172	2	11	16	2	.	.	.	3	March 21 to April 29.
Plum	23	17	35	2	1	.	.	.	.	March 25 to May 8.
Gooseberry ...	57	19	1	.	1	.	.	.	.	March 24 to May 2.
Cherry	103	92	16	.	.	.	.	.	1	March 30 to May 19.
Red Currant ...	10	1	.	.	1	.	.	.	.	March 30 to April 29.
Black Currant ...	36	12	5	.	.	.	.	.	1	March 30 to April 30.
Apple	374	37	21	.	23	104	51	3	2	April 19 to May 26.
Strawberry ...	A	few	hive	bees						
Raspberry (recorded by H. Chapelow)	797	32		24	.	.	.	.	.	May 21 to 30.
Loganberry (recorded by H.Chapelow)	1292	61		.	79	.	.	.	.	May 19 to 30.
Quince	4			.	.	.	Many	.	.	May 1 to 10.

Application of Knowledge of Fruit Pollenation and the Order of Flowering.

Bees are needed for the fertilisation of Gooseberries, Red and Black Currants, Raspberries, Loganberries, Apples, Pears, Plums and Cherries. If the work is too great for the wild bees of the neighbourhood, place one or more hives of bees in the garden, fruit plantation or orchard. If the grower does not "fancy" bees, or has not time to attend to them, it is worth while to employ a man who has, and pay him for his skill and knowledge, or allow a bee-keeper to place hives near the fruit trees or bushes. In California, owners of Plum and Cherry orchards in some cases pay bee keepers so much a hive for placing bees in their orchards. American authorities who have studied the subject, recommend one hive of bees to each acre of fruit.

Planning an Orchard.

As many of the varieties of Apple, Pear, Plum and Cherry are self-sterile, or only self-fruitful to a limited degree, it is desirable before making a new plantation, to think out carefully how one proposes to plant it, choosing two or more varieties that flower about the same time (avoiding the planting of early and late-flowering kinds alone), preferably alternating the varieties every two or three rows : thus, for an Apple orchard, say three rows of James Grieve, then three rows of Lane's Prince Albert, and so on ; or for a Pear orchard, three rows of Durondeau, and three rows of Conference ; or for a Plum orchard, three rows of Pershore Purple Egg and three rows of Czar ; or for a Cherry orchard, three rows of Amber Bigarreau and three rows of Frogmore, and so on.

In a recent letter from Mr. W. T. Macoun, Horticulturist to the Canadian department of Agriculture, he informed me that in Canada it is the practice to plant three rows of one variety, then three rows of another variety, the three rows rather than two or one being on account of greater convenience in spraying and picking.

What is the Minimum Proportion of a Pollenising Variety ?

In the case of an unsuccessful orchard or plantation, the reason of which is considered to be defective pollenation, how can this be corrected ? This subject has been carefully studied on a large scale in America, Professor C. E. Schuster, of the Oregon Agricultural College Experimental Station, in his excellent bulletin, *Pollenation and Growing of the Cherry* (published May, 1925), says attempts to reduce the proportion of pollenisers to one in sixteen or one in twenty-five have proved ineffective, as in too many seasons the second tree away does not receive sufficient cross-pollenation As a rule, one polleniser in nine, or every third tree in every third row, is sufficient ; with this method of planting every tree is more or less in direct contact with the pollenisers, although some are at greater distance than others.

In cases where the trees are set out in the hexagonal system, some growers are placing the polleniser in the centre of the hexagon, giving one polleniser to six of the main variety.

Re-grafting Fruit Trees for Cross-pollenation.

The usual practice is to re-graft the whole tree, choosing about one tree in nine (every third tree in every third row). Sometimes only one branch on a tree is re-grafted with the polleniser : this answers well for cross-pollenation but takes more time and care in picking. It takes two years usually before the graft flower. In order to ensure the wounds healing quickly it is advisable not to graft branches of more than two inches or two-and-a-half inches diameter, as large branches are liable to decay before the wounds heal over. Although re-grafting small boughs gives more work, better results are produced than by re-grafting a smaller number of large boughs. In re-grafting an old tree it is advisable not to cut off all the branches in one year, but to re-graft the tree in two or three years, as some limbs must be left to furnish food to the roots. If an old tree is gradually re-grafted during two or three years it is recommended to graft the top the first season as by so doing there is less risk of knocking out the young grafts when re-grafting is continued.

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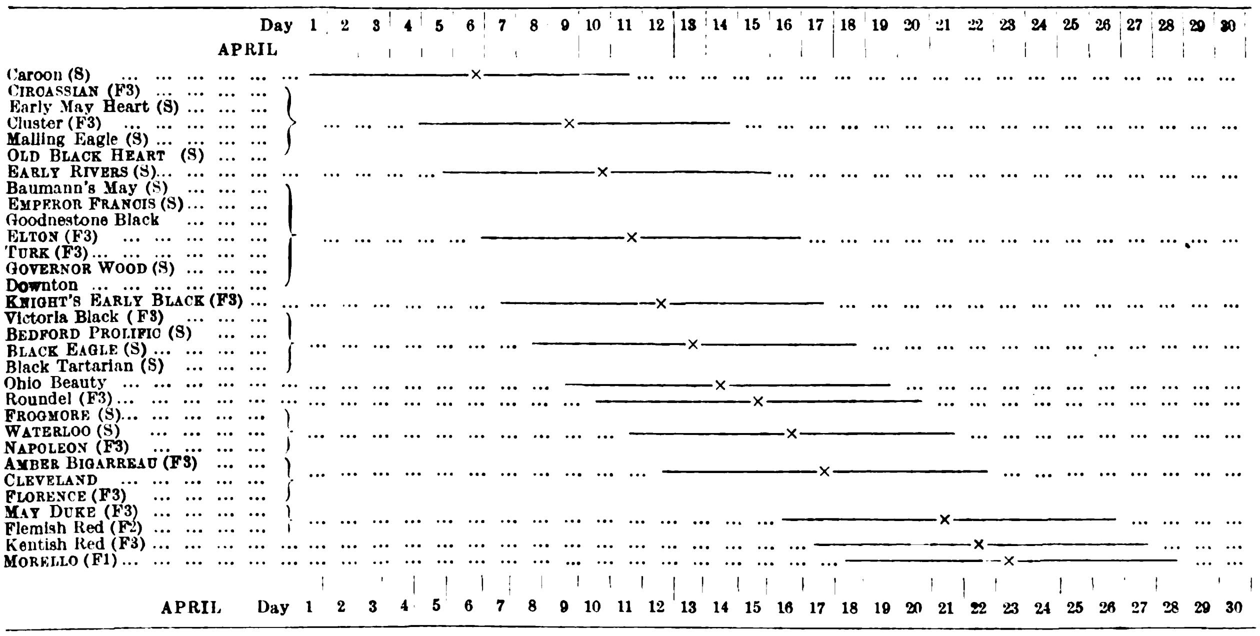
[*] The substance of this article was given by me as a lantern lecture at Southampton on Sept. 1, 1925, before the British Association for the Advancement of Science. *C. H. Hooper, F.L.S.*

POLLENATION BY BRANCHES.

In California it is a practice (whilst waiting for the pollenising varieties to bear blossoms) to cut off branches of flowers of pollenising varieties, place the cut ends in vessels of water and distribute them throughout the orchard during the blossoming time. Such limbs will live for several days and continue to bloom, providing pollen for the bees to transfer to the other variety.

In conclusion, whilst there are many things which play an important part in the production of a good crop of fruit, such as situation, suitable soil, cultivation, favourable season, absence of disease, injurious insects, etc., yet to these should be added a study of the pollenation and fertilization of the blossoms, which may be of great importance to the gardener and add to the financial success of the fruit grower.

My best thanks are due to many fruit farmers and fruit nurserymen who have given me much assistance in collecting information; besides recording my own observations and experiments at Wye, in order to make the subject more complete I have included some observations and results published in the *Journal* of the Royal Horticultural Society by Messrs. F. J. Chittenden and A. N. Rawes, and others from the papers of the John Innes Horticultural Institution, by Mr. M. B. Crane. *Cecil H. Hooper, F.L.S., Wye.*



APPROXIMATE AVERAGE ORDER OF FLOWERING OF CHERRIES.

NOTE.—(S) = Self-sterile. (F1) = Quite self-fruitful. (F2) = Somewhat self-fruitful. (F3) = Slightly self-fruitful. Varieties in large type are in the list of market sorts given by the Ministry of Agriculture in *Leaflet* No. 47.

VARIETIES.	POLLENISER.																																	
	Caroon	Circassian	Early May Heart	Cluster	Black Heart	Malling Eagle	Early Rivers	Baumann's May	Emperor Francis	Goodnestone Black	Elton	Turk	Governor Wood	Knight's Early Black	Victoria Black	Bedford Black Prolific	Black Eagle	Black Tartarian	Roundel	Frogmore	Waterloo	Napoleon	Amber Bigarreau	Florence	May Duke	Flemish Red	Kentish Red	Morello	Noble	Noir de Guben	New England	Monstreuse de Mezel	Ohio Beauty	Big: de Schrecken
Caroon	A	...	...	...	...	...	D	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	B	D	...	...	...	...	...	...	...	...	...	...
Circassian	...	F	...	...	E	...	C	E	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	B	...	...	...	...	...	...
Early May Heart	...	...	A	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Cluster	...	...	...	F	D	...	D	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Black Heart	...	...	A	C	A	...	C	...	...	...	D	C	...	...	...	...	...	...	...	D	...	...	...	...	...	...	...	B	...	...	...	...	...	...
Malling Eagle	...	...	...	...	...	A	D	...	...	...	...	D	...	...	...	...	...	...	...	...	...	A	...	...	...	...	...	...	...	...	...	...	...	...
Early Rivers	D	C	C	E	C	...	A	D	B	...	D	D	D	A	C	A	D	A	...	B	D	C	D	D	B	...	C	...	...	...	C	...	...	...
Baumann's May	...	E	...	...	...	...	C	A	...	...	...	C	...	C	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Emperor Francis	...	...	...	...	...	...	D	...	A	...	C	D	C	C	...	C	...	D	...	D	...	A	...	...	...	...	...	...	...	...	...	...	...	D
Goodnestone Black	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	C	...	...	...	...	...	...	...	...	...	...	...	...	...
Elton	...	C	...	...	D	...	D	C	D	...	F	D	D	E	C	...	D	C	...	D	D	D	D	...	B	...	...	D	...	...	...	D	...	D
Turk	...	D	...	...	...	...	E	...	D	...	C	B	E	C	...	C	...	C	...	D	C	D	C	...	...	...	...	...	...	...	...	C	...	B
Governor Wood	...	C	...	...	...	...	E	B	C	...	C	D	A	E	...	D	C	D	B	C	E	D	D	...	...	...	...	C	D	D	...	...	...	C
Knight's Early Black	...	...	...	...	...	...	A	E	C	...	...	C	C	F	...	A	C	A	C	C	E	D	...	...	...	...	C	D	...	...	...	...	...	C
Victoria Black Prolific	...	...	...	...	...	...	...	...	...	...	...	...	...	...	F	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Bedford Black	...	...	...	...	...	...	A	...	C	...	E	D	D	A	...	A	...	A	...	E	...	D	...	...	...	...	...	...	D	...	...	...	...	D
Black Eagle	...	...	...	...	...	...	D	...	...	...	C	D	...	C	...	...	A	?	...	C	...	C	D	...	B	...	C	D	...	...	...	...	D	C
Black Tartarian	...	...	...	...	...	...	A	...	C	...	C	...	...	...	...	A	...	A	C	C	C	C	...	...	...	...	...	...	D	D	C	...	...	C
Roundel	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	F	...	C	D	E	E	...	...	...	...	...	...	...	...	...	...
Frogmore	...	...	...	...	C	...	C	...	C	...	C	C	C	C	...	D	C	D	C	A	B	...	E	C	B	C	C	B	E	...	...	...	...	A
Waterloo	...	C	...	...	...	...	D	C	...	...	...	C	...	E	...	...	...	E	?	C	A	D	D	...	D	C	...	D	...	...	...	...	...	...
Napoleon	...	C	C	...	...	B	D	...	A	...	C	...	D	D	D	C	D	D	...	C	D	F	D	C	...	...	D	C	...	C	...	...	...	D
Amber Bigarreau	...	B	...	...	C	...	...	...	...	...	...	D	...	...	...	...	...	D	D	E	...	C	F	...	...	...	C	...	...	D	...	...	...	...
Florence	...	...	...	...	...	...	C	...	...	...	...	...	...	C	...	...	...	D	...	...	D	D	D	F	C	...	...	...	...	...	...	...	...	...
May Duke	...	...	...	...	...	...	...	...	...	...	...	...	B	C	...	...	C	...	...	D	C	C	B	...	F	...	B	B	...	...	...	...	...	...
Flemish Red	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	B	...	C	...	...	...	...	...	...
Kentish Red	...	...	...	...	...	...	A	...	...	...	...	...	C	...	...	C	...	...	...	C	...	...	C	...	B	B	B	D	...	...	...	...	...	...
Morello	...	...	...	...	...	...	...	...	...	...	...	B	B	...	...	...	...	...	...	...	...	C	B	...	C	C	...	C	...	C	...	...	...	...
Noble (Tradescant's) Heart	...	...	...	...	...	...	C	...	...	...	...	D	C	...	...	C	...	...	...	D	...	...	...	...	...	...	C	C	A	...	...	...	...	...
Noir de Guben	...	...	...	...	...	...	D	...	...	...	...	...	D	...	...	...	...	...	...	D	...	...	...	...	...	...	D	C	...	A	...	...	...	B
Bigarreau de Schrecken	...	...	...	...	D	...	C	...	...	...	...	...	...	C	...	...	C	...	...	A	...	...	...	...	...	...	...	C	...	C	...	...	...	...

CHERRY POLLENATION TRIALS.

A, matures no fruit; B, matures fruit from only a small proportion of its flowers; not recommended; C, matures a fair crop; D, matures a good crop; E, matures a very good crop; F, matures about one fruit from 100 flowers; G, gives splendid crops. These results are taken from my own experiments, from those published in reports of the John Innes Horticultural Institution, from the results of Mr. W. J. Middlebrooke published in the *Journal of the Ministry of Agriculture*, August, 1915, and those obtained by Mr. R. Florin, Sweden, in 1924.

VEGETABLE GARDEN.

EARLY CAULIFLOWERS.

THE wide range of varieties of this vegetable embracing early, mid-season and late sorts, enables the grower to furnish a succession of heads over many months of the year. The variety Extra Early Forcing may be sown in boxes early in January and the seedlings transferred to boxes so soon as they are strong enough for transplanting, and grown in a moderately cool house where sufficient air is admitted to keep them from damping off. At this stage very little water is required. So soon as they have made their first rough leaves, they should be pricked out into other boxes from two to three inches apart, using fairly rich soil to which a little spent Mushroom-bed manure has been added. Grow them in a house a few degrees warmer than hitherto for a few days, until they recover from the shift, then harden them off gradually.

By the end of March or the first week in April the seedlings should be ready for planting in frames. If the soil in the frames is fairly good they may be planted about nine inches apart. Water the soil sufficiently to settle it about the roots, and keep the frame closed for a few days, also shaded if necessary to encourage quick growth. The plants should be syringed in the afternoons at 3 p.m. on bright sunny days before the frame is closed. As they advance in size more air should be admitted, otherwise they will become drawn and weakly. When well-established a little liquid manure may be given the roots twice a week. By the middle of May the heads should be ready for use.

For a succession the variety Snowball may be chosen. The seeds should be sown in February in the same way as advised for the earlier variety, and so soon as the seedlings are large enough to handle they may be pricked out into a cool frame or pit, three inches apart, and grown on in the same way as advised for Extra Early Forcing. When established and suitably hardened, they may be set in the open ground about the middle of April. Choose rich soil, or ground that was manured liberally last autumn and dug deeply. This Cauliflower is not a large variety, and may be planted at eighteen inches apart. In transferring them from the frames care should be exercised not to injure the roots, and to lift the latter with a good ball of soil.

The variety Braincourt is one of the best of the main-crop sorts, and if the first sowing of this Cauliflower is made in February, the same time as Snowball, and treated in the same way, the plants will form a succession. They should be planted two feet apart; being rather broad in the leaf and not growing so tall as most varieties they cover the ground quicker, and this is a great advantage in keeping the soil moist in hot weather. If successional sowings are made of this variety the various batches will furnish a good supply of heads until late in the autumn, when the self-protecting Broccoli are available. Braincourt, like all other Cauliflowers, needs to be grown in well-cultivated ground. The heads are very large and compact. All Cauliflowers need a good mulching in hot weather and copious supplies of water.

The Autumn Giant varieties form very fine heads, but on our heavy soil the plants grow so tall as to require the support of short stakes against damage by rough winds. *E. Neal, Tilgate Gardens, Crawley.*

TOMATOS IN COLD HOUSES.

To be successful with Tomatos in cold houses the seeds should be sown forthwith and the plants grown steadily on without a check. The seeds should be sown in well-drained receptacles and covered very lightly with fine sandy soil. Place a sheet of glass over the seed-pan, removing it every morning for a short time to allow the condensed water to disperse. When the seedlings are large enough to handle, transfer them singly to small sixty-sized pots, using a fairly open compost. After they are potted they may remain on the lower stages of the houses for several days before placing them on shelves near the roof-glass. Should the weather prove cold, with fear of frost, it will be wise to protect the glass with some suitable material at night.

When it is found that the small receptacles are well-filled with roots the seedlings may be transferred to four-and-a-half inch pots, or planted out in their permanent positions. In the latter case the compost should not be excessively rich, neither do I recommend too much soil to be used in forming the border at this early stage of growth; more may be added after the plants have set one or two trusses of fruit. Until the first two trusses of fruit are set keep the borders well on the dry side, otherwise Tomatos growing in a cold house will be inclined to grow sappy and fail to set fruits freely. The latter trouble may be often traced to over-watering, and the use of an excessively rich compost in the early stages of growth. When two or more trusses of fruits have set, the plants should never be allowed to become excessively dry at the roots or the fruits will be of poor quality and flavourless. Frequent top-dressings of rich soil will encourage young roots to develop and assist the plants during their cropping period.

Keep all laterals removed from the plants, preserving only the main growth which may be stopped after the plants have set from five to six trusses of fruits. The varieties Best of All, Sunrise, Bountiful and Market King produce good crops in a cool glasshouse.

TOMATOS OUT-OF-DOORS.

To ensure good crops of Tomatos in the open the seeds should be sown at once and the plants grown on without a check; late sowing of the seeds is often the cause of failure with out-door Tomatos. The plants may be treated as advised for those grown in a cold house with respect to sowing and raising of the seedlings. The young plants should be grown sturdily, admitting air whenever the weather is favourable for ventilation, but cold draughts must be guarded against in the early stages of growth. The plants should be hardened gradually by placing them in a sheltered position out-of-doors about the third week in May, after which they may be planted in a warm, open situation.

In preparing the soil do not use farmyard manure; this may be applied as a top-dressing after the plants have set two or more trusses of fruit; neither do I recommend too frequent watering of the plants at this stage, as this only tends to produce sappy growth, unsuited to the free setting of the crop. When trusses have formed freely the plants may be treated more liberally with manure and water. *T. Pateman.*

FRUIT REGISTER.

FIGS BROWN TURKEY AND WHITE MARSEILLES.

IN favourable districts, whether grown on walls or as bushes, both these Figs usually bear good crops of excellent fruit; I know of no kinds more dependable for outside culture. The soil in which they are grown should not be too rich, but sweet and rather gritty, containing plenty of old mortar rubble or chalk firmly resting on a well-drained subsoil.

At Northdown, Thanet, several years ago, I saw splendid crops on bushes; the soil being of a very chalky character seemed to suit the Fig. Well-established trees should have their branches thinned more or less to prevent over crowding and to allow an abundance of air to circulate freely amongst those left to fruit. Trees, the roots of which have not been restricted and are inclined to grow too strongly to be productive, should have their roots rather severely pruned, otherwise they will grow for years and never produce a single fruit. The present is a good time to plant young trees, which are usually sold growing in pots and with roots in a cramped condition. If dry, give them a good soaking, then shake away all the soil from amongst the roots, spread them out evenly at different angles and plant firmly. *H. Markham.*

HOME CORRESPONDENCE.

The Editors do not hold themselves responsible for opinions expressed by correspondents.

Grafting Fruit Trees.—I read the note by Mr. Charrington with much interest and wish to thank him for explaining to the readers of *The Gardeners' Chronicle* his method of binding fruit tree grafts. The method is new to me but it appears highly practical, and I should think all the advantages that Mr. Charrington claims for it would be borne out in practice. In gardening, with its wide ramifications, there are many methods of common practice which could probably be improved on, and if improved methods are explained by those who have practised them, as is so ably done in this case, gardening benefits accordingly. *W. Auton.*

[In a certain Devonshire garden we have seen the rubber "ribbon" used to a considerable extent, and successfully, for binding after the operation of budding Plums and Peaches. In this instance the ends were tied and rubber solution was not used. EDS.]

Herbaceous Borders for Amateurs.—The exceedingly favourable review of my book on *Herbaceous Borders* in your issue of March 27 (p. 235) raises two points of interest which you will, perhaps, allow me space to deal with. Horticultural nomenclature is always a difficult problem, and too often the same plant may be found included in different commercial lists under altogether dissimilar names, while it is not unknown for one plant to be offered in the same list under two generic names—and that without explanation. One of the chief uses of the *Kew Hand Lists*, however, is to promote uniformity of nomenclature among gardeners, and to the writer, at any rate, it seems best to use the name recognised at the Royal Botanic Gardens, and to give a cross reference where there is another "botanical" name in common use. Kew is, after all, pretty conservative in its nomenclature. Several good nursery catalogues now list the Dierama under that name and it is generally exhibited under its proper label, but it would, undoubtedly, have been better to include Sparaxis, and add "see Dierama." Paradisia, the other instance which your reviewer mentions, is actually noted under Anthericum. The warning note in the review respecting the use of quick lime is one with which I sympathise very strongly, and I have, on more than one occasion, when reviewing, sounded the same siren. The passage referred to, however, occurs in an introductory chapter on neglected town and suburban gardens, with the inevitable sour soil, and where desperate conditions need drastic remedies. I have, however, been careful to point out that two or three months must be allowed to elapse after liming before planting may be put in hand. The book was written for amateurs of every grade, and, though couched in the simplest and clearest language at the writer's command, was by no means intended *solely* for the novice, hence the inclusion of the "tender subjects likely to present difficulties to amateurs." Your reviewer seems, in this passage, to use "amateur" in rather a show schedule sense, which neither the author nor publishers of the book had in mind, witness *Rhododendrons for Amateurs* and the other hand-books in this series. For the rest, no effort was spared to make the matter as helpful and the lists as comprehensive as possible, yet explanations often seem quite clear to an author which subsequently appear anything but lucid to the reader, and a writer's technical knowledge often stands in the way of complete elucidation to the non-technical. I am more than happy therefore, that a little book, which, I think, covers entirely new ground, should create so favourable an impression upon the mind of your expert reviewer. *R. V. Giffard Woolley.*

Tetrachlorethane as a Glasshouse Fumigant.—I should like to add to the list of plants that will not withstand fumigation with tetrachlorethane, Cytisus fragrans—it sheds every leaf and becomes a hopeless wreck. I have also found that Coleus thyrsoideus and Eupatorium get badly burnt, and I rather suspect this fumigation of having destroyed some young plants of Salpiglossis. I have charge of houses with very mixed contents, and I find it impossible to keep this pest down, when one has to grow show Pelargoniums, Salvia, Coleus, Eupatorium, etc., in the company of other plants. Someone recently suggested fumigating with Xl All Compound, and then well-soaking the floor in the morning so as to drown the stupified flies. But how about the ones that drop on the pots and staging? *Lucy H. Joshua, Horticultural College, Swanley.*

Fruit Trees as Ornamental Subjects.—Mr. John Coombes states (p. 236) that "Landscape gardeners and others when undertaking the formation and construction of pleasure grounds almost invariably neglect or forget the utility of hardy fruit trees for producing fine effects." Far from the subject having been neglected or forgotten, it has received the deep and careful study of this branch of the profession, and where it can be usefully adopted, has been carried out with eminent and unqualified success. The forms of our domesticated fruit trees which are adapted to landscape work are used by every firm of landscape gardeners and architects of repute in this and every other European country also on the American continent. The Almond, Peach, Plum, Cherry, Crab, Medlar, Quince, Rubus and Ribes are all represented, many of them by numerous varieties. I have omitted the Pear from my enumeration because there is not a variety of ornamental Pear at present in the catalogues of any of our nurserymen, so far as I am aware, and in my opinion this is so because there is none worthy of being there, though this is open to controversy. During a four years' residence in Belgium, and a twelve months' recent sojourn in France, I do not recollect seeing anywhere between Paris and Orleans the grounds of any château where domestic utility fruit trees had been used for landscape purposes. No one would wish to deny the great beauty of fruit trees in bloom, but other considerations arise when it is proposed to use them in landscape work with the hope of benefiting by their utility. In view of the numerous pests of fruit trees it is necessary to group the latter in such manner that the needed spraying, grease-banding and so forth demanded to produce fine fruit and healthy growth shall be done with the greatest ease and efficiency and with the least outlay. The spraying fluids would damage the foliage of neighbouring ornamental evergreens,the gathering of the fruits would be inconvenient, and grease-bands are most unsightly. As for their superseding pyramidal Robinia, Oak, Birch, and Elm with their fastigiate habit, this may be; but it can hardly be urged that they equal in rugged grandeur and natural beauty the usual forest trees. I appreciate Mr. Coombes' well-written criticism, but I cannot acquiesce in his method of improving our stereotyped garden formation. *Ben H. Martin, Warwick*

Araujia sericifera.—I read Mr. Joseph Benbow's useful notes (p. 194) on this plant with interest, as they differ in one respect from previous information. I have no personal acquaintance with the plant, but have always understood that insects captured by it were detained by the gripping of their proboscides by the anthers of the flowers. Mr. Benbow refers to the antennae of a moth and a butterfly having been found by him thus fixed, and refers to them as "dot-like"; but as the antennae of both these insects are nearly half-an-inch long, there seems to be some mistake in his observation. If he can send me some of the flowers in due season with some of these "dot-like antennae" in position I shall be very glad. Specimens of the different kinds of insects caught by the flowers would also be welcome. With reference to the hybridisation of Araujia and Stephanotis, I think this is hardly likely, though perhaps just possible, as they both belong to the Asclepiadeae. *C. Nicholson, 35, The Avenue, Hale End, E.4.*

SOCIETIES.

GUILDFORD AND DISTRICT GARDENERS'.

A successful series of winter lectures closed with the meeting held at Guildford on March 9. The announcement that Mr. H. Prince (formerly of Polesden Lacey) would be the speaker, had drawn the largest audience throughout the winter and many late comers could only find standing room.

Naturally, a little disappointment was felt when the President, Alderman W. T. Patrick, J.P., explained that Mr. Prince had been called to Scotland on important business: Mr. Lovejoy, however, was present instead. In dealing with the "Cultivation of Popular Vegetables," Mr. Lovejoy brought under review the most important vegetables grown in nearly all gardens. Pride of place was given to Potatoes. Many interesting details were given of the production of new and improved varieties of various vegetables, but the speaker confessed it sometimes happened that old varieties remained the best, as in the case of the Canadian Wonder French Bean. Many lantern slides were shown, illustrating well-grown vegetables which had won prizes at various exhibitions.

Mr. Lovejoy, for many years engaged in the Testing and Experimental Department of Messrs. Sutton and Sons, was particularly happy in replying to questions put by the professional gardeners present. It was here that the experience of his fifty years could be drawn upon.

In expressing the thanks of the meeting to the speaker for his visit, Mr. Patrick took the opportunity of urging the members to do recruiting work during the summer months by bringing the advantages of the Association to the notice of friends, joining in the summer excursions, endeavouring to reach the goal of at least one thousand members, and doing the best possible to ensure the success of the summer show on July 14.

A particularly pleasing feature of the lectures has been the high standard maintained throughout, coupled with the fact that the attendance has steadily improved, month by month. The Society's first outing this year will take place on April 24, when a visit will be made to Wisley.

KILMARNOCK SPRING SHOW.

Bulb shows are rarely a success in Scotland. Attempts have been made from time to time to establish exhibitions in various districts, but in most cases they have languished for lack of support and usually the state of the finances necessitated their abandonment. Kilmarnock, however, is an exception to the rule. Instituted four years ago by the Welfare Department of Messrs. Glenfield and Kennedy, Limited, the horticultural section has been a pronounced success, each succeeding show being an improvement on its predecessor, both in respect of the quantity and quality of the blooms. The entries at the show held on March 27 numbered 470, and as all the available space was occupied removing the show to larger premises is contemplated.

The schedule contained fifty-six classes and competition was keen, especially in the large Trumpet Daffodil section, where the entries ranged from ten to twelve per class. Hyacinths and Daffodils made a grand display, and the quality was of general excellence, while the outstanding exhibits in the Tulip section consisted of Prince of Austria.

The principal prize-winners in the open classes were Messrs. C. Roxburgh, D. C. Drummond, J. Cochrane, J. Dodds, C. Barclay, James Smith, and in the confined classes, Messrs. W. Winning, C. Roxburgh, James Gilmour, C. Barclay, A. Orr and James Craig.

The Crawford Challenge Cup for Daffodils was won by Mr. J. Cochrane with a lovely pot of Lowdham Beauty, which contained over thirty clean blooms, and it also received a special award for the best pot of Daffodils in the show. The Tupison Hyacinth Cup was awarded to a pot of Grand Maître which was prominent for the number and quality of the spikes. A special prize for the best three vases of long Trumpet Daffodils went to Mr. C. Barclay who staged a creditable pot of Sulphur Beauty, a refined example of Mme. de Graaf; another exhibit of exceptional merit was a seven-inch pot of Lucifer containing no fewer than forty-seven open flowers.

A feature of the show was an exhibit consisting of forty pots of Daffodils of modern introduction. It contained the gem of the show, a novelty named Solfaterre, which is not yet in commerce. It belongs to the Leedsii class, and was the centre of attraction. The blooms are large and well-formed, the perianth being white and the trumpet deep cream. Other meritorious specimens were President Roosevelt and Brigadier, bicolors; Livingstone, white; Tresserve, large yellow; Bath's Flame, King Alfred and Van Waveren's Giant.

An Award of Merit was conferred on a choice collection of Daffodils grown by Mr. J. Montgomery Crawford, Highfield, Barassie. His best vases were Sulphur Beauty, Mimi, Red Beacon, Bedouin, King Alfred, Lucifer, Lord Kitchener and obvallaris.

A charming piece of rockwork built by Messrs. Austin and McAslan, Glasgow, gave variety to the trade exhibits, and the Scottish Co-operative Wholesale Society were represented by a well-arranged group of spring-flowering plants—Heaths, Lilacs, Genistas, Cyclamens, Primulas and Ferns.

MORAY AND NAIRN FORESTRY.

The annual general meeting of this Society was held in the Mechanics' Institute, Forres, Morayshire. The president, Mr. J. Clark, head forester to the Duke of Richmond and Gordon on the Gordon Castle Estates, occupied the chair, and in his opening remarks said that they had completed the third year of their history. When the society was formed the two main objects in view were to gain knowledge and experience, and to encourage intercourse amongst the members. Last years' work in that direction consisted of summer outings to Pitgavny estate, Darnaway estate, Beaufort Castle and Forestry School, Glenferness estate, Seafield estate and Forres town woods, and Messrs. Christie's nurseries, and it was very gratifying to see the numbers who attended those excursions. Lectures during the winter session included papers on "Nursery Work," "Saws, and how they ought to be treated," "Extraction of Conifer Seed," "Establishing of Young Plantations," and "Points on thinning."

The secretary's report showed a membership of 116, as compared with 108 for last year and 102 for the Society's first year. The balance sheet showed a credit balance of £9 10s. 8d., and the library was found to be in a good financial condition. Office-bearers for the ensuing year were elected as follow:—Chairman, Mr. John Clark, Gordon Castle; vice-chairmen, Messrs. Stewart, Innes House; F. Machray, Dunphail, and Morrison, Brodie; and secretary, Mr. Charles Asher, Gordon Castle; treasurer, and librarian, Mr. E. S. Grant, Altyre; assistant librarian, Mr. J. D. Robbie, Monaughty; management committee, Messrs. M. Feaks, Darnaway; C. Bain, Burgie; R. Ross, Forres; D. M. Macdonald, Darnaway; W. McKay, Dalvey; J. McEwen, J. D. Robbie, Mitchell, Kintessack; J. Chalmers, Sutherland, and W. Feaks. Regret was expressed at the resignation from the secretaryship of Mr. J. McEwen, Tiendland. It was proposed to publish a journal containing a record of the years' work, a list of members, and other matters of interest. Mr. McEwen was appointed editor.

The proposed programme of visits for the coming summer is as follows:—April, Grantown-on-Spey; May, Dunphail estate; June, Blackhills estate; July, annual picnic at Nairn; August, Aberlour estate; September, Cathay House, Forres. The usual vote of thanks concluded a very pleasant and harmonious meeting.

ROYAL HORTICULTURAL.

April 7 and 8.—Notwithstanding the holiday week there was a capital display at the Royal Horticultural Hall, Westminster, on the above dates. Daffodils were very much in evidence and provided the leading features, but there were also pleasing exhibits of flowering trees and shrubs, alpine plants, Roses, Orchids, and Carnations. There were numerous and interesting novelties.

Orchid Committee.

Present: Mr. C. J. Lucas (in the Chair), Mr. R. Brooman White, Mr. J. Wilson Potter, Mr. Fred J. Hanbury, Mr. H. T. Pitt, Mr. H. E. Alexander, Mr. Fred K. Sander, Mr. J. E. Shill, Mr. H. H. Smith, Mr. A. McBean, Mr. J. C. Cowan, Mr. R. Paterson, Mr. T. Armstrong, Mr. E. R. Ashton, Mr. Stuart V. Low, and Mr. Charles H. Curtis.

First-Class Certificates.

Dendrobium Model var. Magnificum.—A superb Dendrobium with flowers of grand shape and fine substance. The bases of the segments are white, the apical halves being purplish mauve. The lip has a mauve-purple apex, with a white area surrounding the intense crimson-purple throat. Shown by Baron Bruno Schröder (gr. Mr. Shill), Dell Park, Egham.

Cymbidium Goosander, Westonbirt var. (insigne × Merlin).—In this beautiful variety the flowers are of the finest shape and substance, shaded with soft rose-pink on a palest pink, almost white, ground. The lip is white with a pink margin and has a yellow, brown-marked apex. Shown by Sir George Holford.

Brasso-Cattleya Mary J. S. Hanbury (parentage unknown).—A magnificent flower of good size and form. The petals are deep rosy-mauve and the sepals show a deeper tint of rose. The big, finely frilled lip is mauve at the circumference, but the larger area is veined with old gold on a bright brown ground. Shown by Sir George Holford, Westonbirt, Tetbury.

Brasso-Laelio-Cattleya Caligula var. magnificum (B.-C. Cliftonii × L.-C. callistoglossa).—A grand flower of fine form, size, and substance. The broad petals and the sepals are soft mauve with a deeper colour in the central vein; the wide lip has a bright purple apex with a mauve fringe and base; there are two large yellow blotches in the throat. Shown by Sir George Holford (gr. Mr. H. G. Alexander), Westonbirt, Gloucestershire.

Awards of Merit.

Odontoglossum Rosina, Brockhurst var. (eximium × Lady Pirrie).—A very effective hybrid with large flowers heavily blotched with deep chocolate red on a white ground. The spike shown carried fourteen flowers. Shown by F. J. Hanbury, Esq., Brockhurst, East Grinstead.

Brasso-Cattleya Grand Monarque (Cattleya Schröderae × B.-C. Cliftonii).—Another fine flower in which the influence of B.-C. Cliftonii is evident. The wide sepals and the petals are palest mauve-pink and the frayed rim of the big lip is of the same colour, but the apical part is deep purple shading into the pale orange-yellow throat. Shown by F. J. Hanbury, Esq

Odontioda Brockenhurst var. Memoria J. G. Fowler (Oda. Charlesworthii × Odm. eximium).—A striking hybrid with broad segments that are of a blackish crimson colour; the flat lip is purplish with red markings and a golden crest. Shown by J. J. Bolton, Esq., Claygate Lodge, Claygate, Surrey.

Odontioda Rosaleen (Oda. Coronation × ?).—A handsome variety; the plant carried a branching spike of thirty flowers. The latter are bright mauve with lighter mottling on the sepals and petals and a yellow crest on the lip. Shown by R. Gerrish, Esq. (gr. Mr. W. Sorrell), Milford Manor, Salisbury.

Groups.

A delightful exhibit of Dendrobiums, all finely grown plants, came from Baron Bruno Schröder (gr. Mr. J. E. Shill), Dell Park, Egham. This was greatly admired. Some of the best were D. Thwaitesae, several with over a hundred flowers on them; D. Model and seedlings therefrom, all with mauve-purple and white flowers. Altogether there were about two dozen specimens, each one a model of skilful cultivation.

Dendrobium Thwaitesae was delightfully shown with capital pans of Sophronitis grandiflora by J. J. Bolton, Esq. Claygate Lodge, Surrey (gr. Mr. Lyne), who also exhibited the fine crimson Odontioda Titian, Sophro-Laelio-Cattleya Isabella, the handsome Odontioda Colinge var. Redstart, O. Orestes var. Butterfly which gained a F.C.C. last year, and O. Brackenhurst var. Memoria J. G. Fowler, with fourteen intense crimson flowers.

Messrs. Cowan and Co. had a very pretty exhibit of Orchids which contained fine examples of Odontioda Murillo, O. Charlesworthii, O. Princess, Miltonia Bleuana, Cattleya Tityus, Brasso-Cattleya Cliftonii magnifica with three big blooms, and a central big specimen of the old Dendrobium thyrsiflorum with fourteen of its pendant spikes of yellow and white flowers.

Messrs. Charlesworth and Co. submitted a few dozen plants of considerable merit, the chief of which were the golden-orange Brasso-Laelio-Cattleya Joan, Brasso-Cattleya Apollo var. Rex, with a pair of lovely flowers; Odontioda Vesta of rich red-brown colour; some fine forms of Odontoglossum crispum, O. eximium, O. Serapis and the fine O. Wilckeanum aureum. Miltonia Isobel Sander, Coelogyne virescens, Phalaenopsis Rimestadiana, Cattleya citrina and Maxillaria luteo-alba were other interesting plants in the group from Haywards Heath.

Messrs. Sanders had Cirrhopetalum Wendlandii and Maxillaria praestans on view and Messrs. Black and Flory brought a few hybrid Cattleyas.

Floral Committee.

Present (Section A): Mr. Henry B. May (in the chair), Mr. J. B. McLeod, Mr. Arthur Turner, Mrs. E. M. Wightman, Lady Beatrix Stanley, Mr. H. J. Jones, Mr. Wm. Howe, Mr. J. M. Bridgeford, Mr. M. Allwood, Mr. Donald Allan, Mr. A. Vasey, Mr. J. T. West, Mr. Jas. B. Riding, Mr. W. B. Gingell, Mr. D. B. Crane, Mrs. Helen Lindsay Smith, Mr. Chas. E. Pearson, Mr. G. W. Leak, Mr. W. P. Thomson and Mr. E. R. Janes.

(Section B): Mr. Gerald Loder (in the chair), Mr. T. Hay, Mr. L. R. Russell, Mr. James Hudson, Mr. Reginald Cory, Mr. Charles T. Musgrave, Mr. E. A. Bowles, Mr. W. J. Bean, Mr. G. Reuthe, Mr. R. C. Notcutt, Mr. G. Yeld, Mr. E. H. Wilding, Mr. Mark Fenwick, Mr. F. G. Preston, Mr. R. D. Trotter and Sir William Lawrence.

Awards of Merit.

Acacia verticillata.—A graceful, erect plant, well-furnished with long clusters of pale yellow flowers. The needle-like leaves are dark green and sharp-pointed. It is a valuable greenhouse pot plant. Shown by Messrs. Stuart Low and Co.

Drimys aromatica.—A sturdy, well-flowered spray of this Tasmanian shrub was shown. The oblong leaves are dark green and set off by the red stems and terminal buds. The axillary clusters of small flowers are yellow in colour. Shown by Gerald Loder, Esq., Wakehurst Place, Sussex.

Magnolia conspicua, R. Veitch's variety.—This is a greatly improved variety of the Yulan, and, in addition to its larger flowers, it would appear to flower a little later, and thus be more likely to escape damage by frosts than the type. The flowers are large, substantial, rounded, and the petals curve inwards at the tips. Shown by Messrs. R. Veitch and Son.

Meconopsis Baileyi.—This is one of the blue-flowered perennial Poppies from China. It is a graceful little plant, furnished with soft, ovate, serrate, stem-clasping leaves of pale green colour, and bore solitary, terminal flowers of stippled blue colour. Shown by Lady Aberconway, Bodnant, North Wales.

Rhododendron Augustinii.—The medium-sized trusses bear relatively large flowers of bright mauve colour with a few spots at the base of the upper segment. The outlines of the flowers are prettily waved. The leaves are small and narrow. Shown by Dame Alice Godman, South Lodge, Horsham.

Rhododendron adenopodum.—This species bears small trusses of bright pink flowers which have rather long, reddish stems clothed with fine hairs. There are rosy spots on the upper segments. The relatively large leaves have a cinnamon tomentum. Shown by Gerald Loder, Esq.

Rhododendron campylocarpum × Dr. Stoker.—This handsome hybrid shows more influence of the former parent than the latter. The plentiful, clear yellow flowers have a carmine blotch at the base and small spots of the same colour on the upper segments. The leaves are large and substantial. Shown by K. M'Dowall, Esq., Logan.

Templetonia retusa.—This Australian shrub commonly known as the Coral Bush, was introduced in 1803. It is of dwarf habit, and bears relatively large, Pea-shaped flowers of orange-red colour. The neat, broadly-ovate leaves are of stout texture. Shown by Lt.-Col. Messel, Nymans, Handcross.

Groups.

Roses were splendidly shown by several growers. Mr. George Prince set up admirable vases of Golden Emblem, Madame Abel Chatenay, Mabel Morse, Souvenir de Claudius Pernet, Padre and graceful sprays of the Yellow Banksian Rose. Mr. Elisha J. Hicks included vases of Mrs. H. Stevens, Ophelia, Madame Abel Chatenay, Clovelly and America.

Chief amongst the good Roses exhibited by Messrs. B. R. Cant and Sons were vases of the Mrs. Beatty, Joan, Lady Wakefield, Golden Ophelia and Phoebe. A graceful exhibit arranged by Messrs. Frank Cant & Co. was composed chiefly of the cluster-flowered varieties. There were drooping standards of Yvonne and Excelsa over vases of La Reine Elizabeth, vivid crimson, Orange King and Queen Wilhelmina, pink. Mr. J. H. Pemberton staged small pot plants of dwarf Polyantha Roses, such as Alice Amos, Edith Cavell, White Echo and Koster's Orleans.

Carnations were freely shown, and of very good quality. Messrs. Allwood Bros. exhibited a large quantity of the perpetual varieties, and also had a good selection of Dianthus Allwoodii. In addition to these, they showed their hybrid perpetual border varieties of which Sussex Beauty, Sussex Purple, Sussex Avondale and Sussex Flake are good examples. Eileen Low, Mary Pearson, Mauve Queen and White Pearl were prominent amongst the Carnations staged by Messrs. Stuart Low and Co., while Mr. R. Engelmann had good vases of Cupid, Spectrum, Janet, Surprise and Violet Mond in his collection

In an interesting exhibit of Auriculas, Mr. James Douglas had some very good seedlings, and also plants of Prince of Tyre, large, rounded blooms of velvety purple colour with a white eye; Red Self, white-eyed; Janet, rose-maroon, with yellow eye; Dean Hole, and several colour names, such as Blue, which has a mealy centre, and Heliotrope.

A large collection of Freesias was again shown by Mr. G. H. Dalrymple. His chief varieties were Mouette, Bluebeard, Apotheose, Buttercup, Conquest, Golden King, Jubilee, Preciosa and Treasure. At the end of the Freesias there were well-flowered plants of the Bartley strain of Primula pulverulenta, Bartley Blush, Bartley Pink, and Lady Thursby were all very beautiful.

Flowering shrubs were not quite so numerous as at the previous meeting. Col. Stephenson-Clarke, Cuckfield, exhibited trusses of splendid Rhododendrons of such varieties as Duke of Cornwall, Beauty of Tremough, Barclayi, Cornubia and niveum. Mr. G. Reuthe associated Rhododendrons with general shrubs and alpines. His Rhododendrons included R. Thomsonii grandiflora, R. Listerianum and R. Keysii.

A simple, yet effective group was made by Messrs. R. and G. Cuthbert with floriferous bushes of Laburnum Vossii, Viburnum Opulus, V. Carlesii, Staphylea pinnata, Wistaria sinensis and Deutzia gracilis. Messrs. L. R. Russell, Ltd., showed Clematis, Vitis sp. and other shrubs.

Adjoining their Carnations Messrs. Stuart Low and Co. arranged an imposing collection of Acacias (Mimosas), Boronia megastigma, and other hard-wooded plants.

Attractive little rock gardens were made and planted by Mr. F. G. Wood, who employed Fritillaria pyrenaica, Primula altaica and various Polyanthuses very tastefully. Messrs. M. Prichard and Sons, who planted Gentiana acaulis, G. verna angulosa, Ramondia Nathaliae, Æthionema Warley and various Primulas; and The Misses Hopkins, who had a choice little selection of seasonable flowers; Mr. Clarence Elliott, whose chief plants were Chieranthus Harper Crewe, Saxifrages, Gentiana acaulis and alpine Auriculas; Messrs. Maxwell and Beale, who planted Andromeda tetragona, Androsace Chumbyi Brilliant and other alpines.

In collections of Alpines in pots Messrs Waterer, Sons and Crisp included Erythronium Johnsonii, Oxalis adenophylla, Violas and Polyanthuses; Messrs. Bakers, Ltd., had Primula deltoidea, P. hirsuta and P. cortusoides of considerable beauty.

A large collection of well-grown Polyanthuses, set out in masses of distinct colours was displayed by Messrs. Blackmore and Langdon, while Messrs. John and A. H. Crook showed good examples of their strain of Polyanthus; and Mr. G. H. Miller showed double white and double lilac Primroses bearing large quantities of bloom, with Laced and Miller's yellow Polyanthuses; also vases of Muscari Heavenly Blue.

In addition to alpines in pots Mr. H. Hemsley showed a collection of interesting Cacti in small pots. The chief genera were Mamillaria, Cereus, Echinocereus, Haworthia, and Agave. Messrs. W. H. Rogers and Son showed batches of Lithospermum Heavenly Blue, Armeria caespitosa, Aubrietias in variety and Iris pumila azurea.

A good collection of St. Brigid Anemones was staged by Messrs. Reamsbottom and Co.: Mr. J. J. Kettle exhibited Sweet Violets and Mr. John Klinkert had a small collection of topiary in Buxus sempervirens.

Narcissus and Tulip Committee.

Present: Mr. E. A. Bowles (in the Chair), Mr. W. Poupart, Mr. P. R. Barr, Mr. Geo. Churcher Mr. Alfred W. White, Mr. Jas. de, Graaff, Mr. Frances Barchard, Mr. J. W. Jones. Mr. Reginald Cory, Mr. J. Duncan Pearson, Mr. F. Herbert Chapman, Mr. W. F. M. Copeland, Mr. G. W. Leak, Mr. Charles H. Curtis, and Mr. George Monro.

Awards of Merit.

Elegance.—A giant Leedsii of chaste appearance, perianth and trumpet being white. The flowers are of large size and good form. Shown by Messrs. R. H. Bath.

Scarlet Beauty.—In this beautiful Incomparabilis variety the wide perianth segments are creamy white, and the frilled, wide trumpet is bright orange, almost scarlet at the rim. Shown by Messrs. R. H. Bath.

Nene Beauty.—A very fine Incomparabilis variety with a wide, flat, golden yellow crown and broad white perianth segments. Shown by Messrs. R. H. Bath.

Sybil.—A giant Leedsii variety with white and somewhat pointed perianth segments and a frilled pale sulphur-yellow trumpet. This variety gained the award for market purposes. Shown by Messrs. R. H. Bath.

Ditty.—A charming poeticus variety, a trifle on the small size as flowers go now-a-days, but of good form and unusually good substance; pure white, with red-rimmed orange eye. Shown by Messrs. Herbert Chapman, Ltd.

Rosary.—A Trumpet variety with large flowers; perianth soft creamy white, trumpet of palest primrose colour. Raised by Mr. Engleheart. Shown by Messrs. H. Chapman.

Paramount.—An Incomparabilis variety of great beauty. The perianth segments are soft yellow, with small white tips. The trumpet is rich orange yellow, lightly frilled. Shown by Messrs. H. Chapman.

Groups.

A large wall space was splendidly filled by Messrs. Barr and Sons with a first-rate collection which included many seedlings of outstanding qualities. These unnamed flowers were of several types, but it was the Incomparabilis blooms, which have pink shaded coronas, that attracted the most attention, as they were very beautiful. Of the named sorts the very best were Mrs. R. O. Backhouse, a wonderfully beautiful giant Leedsii of fine rounded form and pinkish-apricot corona; Fiery Monarch, an Incomparabilis with a fiery orange corona; John Evelyn, an Incomparabilis with an uncommon frilled corona; Arion, a dainty lemon-coloured, small Leedsii: Snow Sprite, a very uncommon double Leedsii; and Milk and Honey, a good double.

On the other side of the entrance, Messrs. R. H. Bath, Ltd., filled an equally large space with an excellent collection. There was a good sprinkling of seedlings of merit amongst the good standard varieties. The chief of the latter were Unity Hope, an Incomparabilis of good form with a coloured corona; White Lady, a dainty Leedsii: Whitewell, large Barrii; Kingsley, Poeticus: Brilliant Star and Pixie, Barrii varieties with glowing coronas.

Against the wall, Messrs. Sutton and Sons most attractively displayed a large collection of magnificent blooms in mounds of moss. Many seedlings of various types and considerable excellence were included in this striking exhibit. Amongst the named sorts were Pilgrim Father, Wheel of Fortune, large yellow trumpets; Noble, bi-colour trumpet: Mitylene, a giant Leedsii, equal in size to the largest Trumpet Daffodil; Dinton Red, a perfectly-formed Poeticus: Doctrinaire, Sunset Glow and Harpagon. Barrii varieties, with brilliant coronas; and a lovely Triandrus hybrid with a frilled corona.

A smaller collection, arranged by Mr. J. W. Barr, included a number of desirable varieties in addition to some splendid seedlings. The outstanding varieties were Tresserve, a rich yellow Trumpet; Tamora, sulphur Trumpet; Olympia and Polemon, yellow Trumpets; Sea Nymph, Incomparabilis, with pink-flushed corona; Red Hussar, double, with orange and yellow centre; White Pearl, Incomparabilis; Carmenta, large lemon Trumpet: Caedman, Poeticus and a vase of the true Jonquil.

In addition to their newest seedlings of considerable merit, The Welsh Bulb Fields Company displayed the following excellent named varieties: Colwyn, a graceful Leedsii; Owen, a vivid Barrii, which received an Award of Merit in 1923; John Evelyn, Incomparabilis, with a pale apricot corona; Masterpiece, a vivid Barrii; Canute, large Trumpet; Lady Margaret Boscawen, a chaste Leedsii of perfect form; Lucifer, Barrii, with glowing corona; and Tantalus, a large sulphur Trumpet.

Near the gallery, Messrs. J. R. Pearson and Sons arranged a collection of magnificent Narcissi, both of their well-known type of seedlings and named varieties.

Seedlings predominated in the exhibit of Mr. F. M. Copeland, whose named sorts included Meringues, Irene Copeland and Silver Rose, three uncommonly good doubles.

In a small collection of Tulips, Messrs. J. Carter and Co. displayed several large baskets of Apple Blossom, a showy, semi-double Dutch variety; William Pitt, a good Darwin; and La Reve a showy single.

Fruit and Vegetable Committee.

Present: Mr. C. G. A. Nix (chairman), Mr. J. Cheal, Mr. W. Poupart, Mr. Geo. F. Tinley, Mr. E. Laxton, Mr. E. Neal, Mr. W. H. Divers, Mr. A. Metcalfe, Mr. A. E. Newby, Mr. E. Beckett and Mr. A. N. Rawes (secretary).

Cooked specimens of the Jerusalem Artichoke Fuseau, which were exhibited by Mr. Beckett at the previous meeting, were sampled by the committee: the flavour is very good. The variety was recommended to be tried at Wisley.

In view of the interest taken in the exhibits of Rhubarb at recent meetings, Mr. W. Poupart brought a few well-known varieties for the committee's inspection, including Hawke's Champagne, Victory, Bedford Scarlet, Champion, The Sutton, Linnaeus (syn. Johnston's St. Martin), and Glaskin's Perpetual.

Obituary.

I. S. Johnson.—Messrs. Hurst and Son inform us of the death, at Eastbourne, on March 23, of Mr. I. S. Johnson, who for many years took a leading part in the firm's activities. He retired so long ago as 1891, but will be remembered by many of the older generation of seedsmen. He had attained the ripe old age of ninety-four years.

William Allen.—Although in his eighty-fifth year, William Allan was to all appearances hale and hearty, and went about his duties up to March 22, but he passed away peacefully in his sleep on the morning of March 25. Few men were better known in the world of horticulture in East Anglia than he. As a cultivator of Grapes, Apples and Pears he stood pre-eminent, as was witnessed by his successes at the R.H.S. exhibitions many years ago, and at Norwich show right up to November last. Among vegetables, Allan's Reliance Onion will stand as his memorial. He was for sixty years gardener at Gunton Hall, Norfolk, and served under three Lord Suffields. He brought Gunton Park Gardens to such perfection that they became a recognised Mecca for those who made Cromer and Sheringham their holiday haunt. William Allan was always happy with visitors; his genial manner was an outstanding feature indeed, he never seemed cross with anyone. Whilst the birds were singing their spring songs and the shrubs bursting forth in flower and foliage, his remains were laid to rest in the churchyard adjacent to the gardens he loved so well. Amongst horticulturists present at the funeral there were Mr. John Clayton (Messrs. Daniels Bros., Ltd.), Mr. George Davison (Westwick), Mr. H. G. Oclea (Bleckling Hall), Mr. C. Naylor (Overstrand), Mr. W. Pegg (Overstrand), Mr. G. Sidell (Westwick), Mr. H. Goude (Horticultural Advisor for Norfolk), Mr. H. Perry (Norwich), Mr. Sam High (Framingham Manor), Mr. Simpson (Worstead), Mr. W. Chettleburgh (Worstead), and Mr. James Tyler (Southrepps). *H. P.*

ANSWERS TO CORRESPONDENTS.

Daffodil with Divided Trumpet.—*F. M.* In the flower received from you the trumpet is divided rather prettily into regular sections, and as these sections recurve at the ends, they produce, together with the white perianth a very pleasing and distinct appearance. Although we do not believe there is any great commercial value in the variety, we think it will be well worth while to increase the stock, as there are certain to be some people who would like to have the variety if it remains true.

Names of Plants.—*W. G. C.* 1, Ribes aurantiacum; 2, Berberis Gagnepainii; 3, Paeonia sp., send in flower; 4, Cupressus Lawsoniana: 5, Berberis japonica; 6, Senecio Grayii; 6, Rhus typhina; 8, Berberis aristata; 9, Phillyrea media; 10, Spiraea Thunbergii; 11, Olearia Haastii; 12, Rosmarinus officinalis: 13, Stephanotis floribunda. *A. S. P.* Prunus triloba. *T. W.* Cotoneaster horizontalis.

Pampas Grass. *E. T. M.* The Pampas Grass will flourish in any garden soil and does not require any special treatment. A simple method of ridding old clumps of the unsightly accumulation of dead leaves and stalks is to set light to the clump on the windward side, when the dry material will be quickly consumed. If the clump is very large water should be poured on to the centre when the outside debris is burnt to prevent any likelihood of injury to the inside shoots, but with medium-sized examples this precaution is not necessary. If the burning is done just as growth is about to recommence the fire-blackened stems will soon be hidden.

Communications Received.—W. C. California—J. R.—E. B.—W. F. S.—L. S.—F. T. B.—C. C. R.—E. J.—A. S. H.—J. Y.—Uno.—R. McS.—J. W.—W. L.—F. D.—E. H. P.

MARKETS.

COVENT GARDEN, Tuesday, April 6th, 1926.

Plants in Pots, etc.: Average Wholesale Prices.

(All 48's except where otherwise stated).

	s. d. s. d.
Adiantum cuneatum per doz. ...	12 0–15 0
—elegans ...	12 0–15 0
Aralia Sieboldii	9 0–10 0
Araucarias, per doz.	30 0–42 0
Asparagus plumosus	12 0–18 0
—Sprengeri ...	12 0–18 0
Aspidistra, green	36 0–60 0
Asplenium, per doz.	12 0–18 0
—32's	24 0–30 0
—nidus	12 0–15 0
Azaleas, 48's, each	4 0—6 0
Boronia megastigma, 48's, per doz.	30 0–36 0
Cacti, per tray —12's, 15's ...	5 0– 7 0
Cinerarias, 48's, per doz. ...	18 0–21 0
Crotons, per doz.	30 0–45 0
Cyclamens, 48's in variety, per doz.	24 0–30 0
Cyrtomium ...	10 0–25 0
Daffodils, 48's, per doz. ...	18 0 21 0
Genistas, 48's, per doz. ...	24 0–27 0
Hyacinths, large white, 48's, per doz.	21 0 24 0
Hydrangeas, pink, 48's, per doz....	24 0–30 0
—white, 48's, per doz.	24 0–27 0
—blue, 48's, per doz.	24 0–36 0
Marguerites, 48's per doz. ...	18 0–21 0
Nephrolepis in variety ...	12 0–18 0
—32's	24 0–36 0
Palms, Kentia	30 0–48 0
—60's	15 0–18 0
Pteris, in variety	10 0–15 0
—large, 60's ...	5 0– 6 0
—small	4 0– 5 0
—72's per tray of 15's	2 6– 3 0

Cut Flowers, etc.: Average Wholesale Prices.

	s. d. s. d.
Adiantum decorum, doz. bun.	12 0–15 0
cuneatum, per doz. bun. ...	10 0–12 0
Anemone fulgens, per doz. bun.	2 6– 3 6
Arums (Richardias) per doz.	6 0—7 0
Asparagus plumosus, per bun., long trails, 6's,	2 0– 3 0
med. sprays	1 6– 2 6
short	0 9– 1 3
—Sprengeri, bun long sprays...	1 6– 2 0
med. ,, ...	1 0– 1 6
short ,, ...	0 4– 1 0
Camellias, white per box, 12's	0– 3 6
Carnations, per doz. blooms	2 6– 3 6
Croton leaves per doz. ...	1 9– 2 6
Daffodils, Emperor, per doz. bun. ...	3 0—4 0
—King Alfred, per doz. bun.	7 0—8 0
—Sir Watkin, per doz. bun.	3 0—4 0
—Victoria, per doz. bun. ...	4 0—5 0
Fern, French, per doz. bun.	10 0–12 0
Forget-me-not, per doz. bun.	9 0–15 0
Freesia, white, per doz. bun.	2 0—2 6
French Flowers — Anemone, De Caen, per doz. bun.	4 0—5 0
—Anemones, St. Bridgid, per doz. bun. ...	4 0—6 0
—double pink, per doz. bun.	1 6—2 0
—double red, per doz. bun.	2 6—3 0
—Parma Violets, per bun. ...	2 6—3 0
—Ranunculus, scarlet, per doz. bun. ...	6 0—7 0
carmine, per doz. bun. ...	5 0—6 0
—orange, per doz. bun. ...	12 0–15 0
—Star of Bethlehem, (Allium), per doz. bun.	3 0—3 6
Gardenias, 12's, 18's, per box	5 0—7 0
Heather, white, per doz. bun.	10 0–12 0
pink, per doz. bun.	9 0–12 0
Hyacinths, large white, per doz. spikes ...	3 0—4 0
Iris blue, per doz. blooms ...	1 6—2 6
Lilac, white, per doz. sprays ..	6 0—7 0
Lilium longiflorum long, per doz.	6 0—7 0
—speciosum rubrum, long, per doz. blooms ...	4 0—5 0
—short, doz. blooms ...	2 6—3 6
Lily-of-the Valley, per doz. bun.	24 0–36 0
Narcissus Grand Primo, per doz. bun.... ...	3 0—4 0
—Narcissus ornatus, per doz. bun.	2 6—3 6
—Barrii, per doz. bun.	2 6—3 0
—Leedsii, per doz. bun. ...	4 0—6 0
—Poetaz, per doz. bun. ...	4 0—6 0
—Horace, per doz. bun. ...	5 0—6 0
Orchids, per doz.	
—Cattleyas ...	24 0–30 0
—Cypripediums	5 0—7 0
Roses, per doz. blooms—	
—Madame Abel Chatenay ...	4 0 5 0
—Molly Sharman Crawford	3 0—5 0
—Richmond ...	3 6—6 0
—Columbia ...	5 0—7 0
—Golden Ophelia	4 0– 5 0
—Sunburst ...	4 0—5 0
—Mrs. Aaron Ward	3 0—4 0
—Madame Butterfly	4 0—5 0
Smilax, per doz. trails	6 0—7 0
Stock, double white, per doz. bun.	3 0—4 0
Sweet Peas, per doz. bun.	12 0–18 0
Tulips—	
—white	18 0–27 0
—yellow ...	18 0–27 0
—scarlet ...	18 0–24 0
—pink	18 0–24 0
—W. Copland, per doz. bun. ...	18 0–24 0
—Clara Butt ...	18 0–24 0
—Couronne d'or, per doz. bun.	15 0–18 0
—Double yellow	18 0–24 0
—Darwin—	
—Bartigan ...	18 0–24 0
—Elizabeth ...	18 0–30 0
—Farncombe Sanders ...	18 0–24 0
—Le Notre ...	18 0–24 0
Violets	3 0—4 0

REMARKS.—Supplies throughout this department were sufficient at Easter for most requirements, and the quotations given were fairly correct for most subjects. The numbers of out-door Daffodils from home-growers increased towards the end of the week, and before the market closed on Saturday prices for these blooms were considerably reduced to effect a clearance. In addition to these, large supplies were received from the Channel Islands, consisting of Daffodils, Narcissus, Tulips and Anemones. Fine weather resulted in larger supplies of all Roses and Carnations, There promises to be a general fall in prices throughout this department during the next week owing to the increased quantities. Supplies from the south of France suffered in transit owing to the warm weather, and great quantities of these blooms could not be recommended for re-dispatch to the provinces, especially Anemones, Narcissi, Star of Bethlehem (Allium) and Ranunculus.

Vegetables: Average Wholesale Prices.

	s. d. s. d.
Artichokes, green per doz. ...	1 6—2 0
Asparagus—	
—Cavaillon ...	1 0—1 2
—Lauris ...	1 6—2 6
—Sprue... ...	1 3—1 6
Beans—	
—Madeira, per basket	3 0—4 0
Boxes	3 0—5 0
—Guernsey and Worthing forced...	2 3—3 6
Broad Beans, per case	2 6—3 0
Beets, per cwt.	6 0—8 0
Caulliflowers—	
—St. Malo, per crate	6 0–10 0
New Carrots, per doz. bundles ...	8 0–12 0
Chicory, Belgian, per lb	0 3—0 4
Cucumbers, per doz.	6 0—8 0
Endive, per doz.	2 0—2 6
Horseradish, per bundle ...	1 3—1 6
Lettuce, round, per crate ...	4 0—6 0
—long, per doz.	4 0—6 0
Mint, forced ...	2 0—4 0
Mushrooms, —French ...	1 6—2 6
Mushrooms, —cups	2 0—2 6
—Broilers ...	1 6—2 0
Onions—	
—Dutch	6 6—7 6
—Valencia ...	8 0–10 0
Parsnips, per cwt.	6 0—7 0
Peas, French crate	4 0—6 0
Potatos—	
—Dunbar ...	6 6—7 0
—King Edward, per cwt. ...	5 6—6 6
—others	4 6—6 0
New Potatos—	
—Spanish, per cwt.	21 0—23 0
—Algerian per lb.	0 1½–0 2½
—Canary Island	12 0–16 0
—Guernsey ...	0 6½–0 8
Rhubarb, forced, per doz. bundles	0 9—1 3
—outdoor ...	4 0—5 0
Seakale, Natural, per ½-sieve ...	7 0—8 0
—punnet ...	1 0—1 6
Spinach, per bushel ...	4 0—6 0
Spring Greens, per bag ...	5 0—6 0
Savoys, per doz.	3 0—3 6
Tomatos, Canary Islands Best...	22 6–27 6
—English... ...	— 3 0
Turnips, per cwt.	4 0—5 0
—new, per doz. bunches ...	10 0–12 0
Turnip Tops, per bag ...	2 0—2 6

Fruit: Wholesale Average Prices.

	s. d. s. d.
Apples, Cooking—	
—Bramley's Seedling ...	6 0–12 6
—Lane's Prince Albert	6 0–10 0
—Newton Wonder ...	6 0–10 0
Apples, American	
—Oregon Newtown ...	14 0–15 0
—Winesap ...	10 0–13 0
Apples Nova Scotia—	
—Ben Davis ...	10 0–14 0
—Russet ...	20 0–25 0
—Stark ...	10 0–16 0
—Baldwin ...	12 6–20 0
Bananas	18 0–27 6
Dates (Tunis), per doz. cartons	3 6—4 0
Grapes, Belgian—	
—Gros Colmar	2 0—3 0
Grape Fruit,	
—Jamaica ...	30 0–35 0
—Isle of Pines	30 0 35 0
—Pines ...	2 0—4 0
—Florida ...	30 0–40 0
Lemons, Messina, per box ...	10 0–12 6
Oranges—	
—Denia	14 0–35 0
—Jamaica ...	12 0–16 0
—Murcia ...	14 0–30 0
—Jaffa ...	20 0–25 0
—Palermo Bitters	10 0–11 0
—Seville ...	10 0–12 0
South African fruits—	
—Peaches, per box	7 0–12 6
—Plums, Wickson	5 0—6 0
—Kelsey ...	7 0–10 0
—Pears, Beurré Hardy ...	4 6—7 0
—Louise Bonne of Jersey ...	4 0—6 0
—Duchesse ...	3 6—4 0
—Comice ...	10 0–12 0
South African Grapes—	
—Hermitage ...	— 6 0
—Molanera ...	— 12 0
—White Hannepoot... ...	10 0–12 0
—Reo dd. ...	10 0–12 0
—Waltham Cross	10 0–12 0
—Gros Colman	15 0–17 0
Strawberries, per lb.	8 0—12 0

REMARKS.—The trade during and after the Easter holiday has been very brisk and a considerable volume of business has been transacted. Cape fruits, consisting mainly of Pears, Plums and Grapes, have been in large supply and sound parcels have sold satisfactorily. The Apple trade has not been good; supplies from the United States are still available as well as from Australia; some fruits from the latter source are affected with "spot." Comparatively large quantities of English Bramley's Seedling from cold stores are being marketed, but the demand is not so good as it might be. Choice vegetables are more plentiful, with a corresponding reduction in prices. Forced Beans, Peas and new Potatos are all somewhat cheaper. Asparagus from France is abundant and cheap and a sprinkling of home grown Asparagus is also coming to hand. Salads are selling moderately well. Green vegetables are inclined to be cheaper. Mushrooms are in heavier supply, the fine weather no doubt encouraging their development. The old Potato trade is affected by the large quantities of new Potatos from Spain, Algeria, and the Canary Islands.

GLASGOW.

THE cut flower market opened firmly in Easter week, but the improvement in prices was only temporary, and by Friday they were back again to their former levels. In no case was there any sharp reaction, rather a general drooping caused by the blown condition of the flowers following on a spell of warm weather. Varieties of early dwarf Tulips were not very numerous, but Darwin Tulips are coming in larger quantities. Bartigon, Farncombe Sanders, W. Copland, Le Tonnage and Pride of Haarlem were worth from 10d. to 1/3 for 6's; Murillo medium, 8d. to 10d.; specials, 1/-; Lucretia, 1/2 to 1/4; Couronne d'Or, 8d. to 10d.; Prince of Austria, 6d. to 10d.; and La Reine, 6d. to 9d. Daffodils are dearer, particularly King Alfred, which made up to 8/- and 9/- per dozen; Emperor, Victoria and Sir Watkin, 2/- to 3/6; princeps and Golden Spur, 1/6 to 2/6; ornatus (Scotch), 4/6 to 5/-; special, 6/- to 8/-; Spalding and Guernsey blooms, 2/- to 3/-. Hyacinths ranged from 5d. to 9d. for 3's; Carnations realised 3/- to 6/- per dozen; Roses 9/- to 10/- per dozen; Lilium longiflorum (Harrissii) was worth 7/- to 10/-; Richardias Scotch-grown, 10/- to 12/-; ordinary, 6/- to 9/-; Lily-of-the-Valley fetched 2/- to 2/6 per bunch. Other prices were Lilac, white, 5/- to 7/-; coloured, 4/- to 6/-; Anemones, 3/- to 9/- per dozen bunches; Wallflowers, 1/6 to 2/6; English Violets, 1/3 to 1/6; Smilax, 2/- to 2/6; and Asparagus Fern, 1/- to 2/-.

Bedding-out plants sold slowly at 1/- to 1/3 per box, but Geraniums in pots realised 10/- per dozen. Azaleas, 2/- to 3/- per pot, and Aspidistras, 10d. to 1/3 each.

Business in the fruit market was quiet and featureless. American Apples are becoming scarcer, and barrelled fruit remains dear. Greening selling from 32/- to 38/-; Ben Davis, 22/- to 26/-; Ganos, 20/- to 28/-; Baldwin, 22/- to 30/-; Albemarle, 30/- to 40/-, and Russet, 16/- to 23/-. The prices for Valencia, Jaffa, Murcia and Californian Oranges were unchanged, while South African Pears and Plums were in a similar condition. Grape Fruit of the Blue Goose brand was worth from 30/- to 34/- per case, and other brands made 24/- to 28/-. Naples Lemons were worth 14/- to 18/-; and Palermo Lemons, 10/- to 12/6.

With the exception of Rhubarb, which experienced a sharp advance to 30/- and 32/- per cwt., vegetable prices made little movement either way. Asparagus averaged 2/- to 2/6 per bunch; Cucumbers, 9/- to 12/- per dozen; Lettuces, outdoor, 3/- to 3/6 per dozen; indoor, 1/6 to 1/9; Syboes, 5/- to 6/-; Mushrooms, 2/6; Radishes, 2/- to 3/-; Endives, 2/6 to 3/6; and Artichokes, 1/6 to 1/9 per stone.

THE WEATHER IN MARCH.

MARCH was a month of comparatively good weather with little rainfall and a higher temperature than usual. The mean temperature for the month was 43°, or 3½° above the normal, the mean maximum of 48·8° being 2° higher, and the mean minimum of 37·6°, 4° higher. The highest screen maximum of 58° was recorded on the 13th, and the lowest minimum of 31° on the 4th and 5th. On the grass, the average temperature during the night was 33·8° the lowest point of 24° being reached on the night between 4th and 5th. There were in all seven days of ground frost. At one foot deep the soil temperature, with slight fluctuation, was the same at the end as at the beginning, viz., 42°. Snow fell on three days and was lying at 9 a.m. on two occasions. Rainfall reached the small total of 25·9 millimetres (1·02 inch). A measurable quantity was collected on sixteen days, and the wettest day was the 9th, with 7·37 millimetres (·29 of an inch). Although rainfall was low, humidity was relatively high. Sunshine was considerably less than normal, and totalled 88·1 hours, a daily average of 2·84 hours, and a percentage of 24 of the possible. The brightest day was the 15th, with 8·6 hours. Six days were absolutely sunless. The mean barometric reading was 1014 millibars (29·95 inches). The highest reading was on the 20th (1036·6 mbs.), and lowest on the 4th (984·9 mbs.). Winds were variable and frequently high, reaching gale force on 2nd, 3rd, 8th and 10th. Displays of aurora borealis were observed during the evening of the 9th and 19th. *W. McClelland, Meteorological Station, St. Andrew's Training College Gardens, Mayfield, Dundee.*

GARDENING APPOINTMENTS.

Mr. F. Bowers, for eleven-and-a-half-years gardener to the late Sir O. H. P. SCOURFIELD, Bart., and three years with W. E. DIXON, Esq., Williamston, Neyland, Pembrokeshire, as gardener to A. L. JESSOP, Esq., Lexham Hall, Kings Lynn, Norfolk. (Thanks for 2/6 for R.G.O.F. Box).—EDS.

Mr. J. Walpole, for the first five years foreman at Grimsthorpe Gardens, Bourne, Lincolnshire, as gardener to the EARL OF ANCASTER, Drummond Gardens, Crieff, Perthshire. (Thanks for 2/6 for R.G.O.F. Box).—EDS.

Mr. W. Everatt, for six years and three months gardener to the Right Honble. The EARL OF ANCASTER, Drummond Castle, Crieff, Perthshire, as gardener-steward to Sir WILLIAM LAWRENCE, Bart., Burford, Dorking, Surrey. (Thanks for 2/6 for R.G.O.F. Box).—EDS.

Mr. J. Turton, for twenty-two years gardener to the late R. J. FOSTER, Esq., Stockeld Park, Wetherby, as gardener to J. S. LLOYD-GREAME, Esq., Sewerby House, Bridlington. (Thanks for 2/- for R.G.O.F. Box).—EDS.

SCHEDULES RECEIVED.

WOLVERHAMPTON FLORAL FETE.—Thirty-fourth Show, to be held on Tuesday, Wednesday and Thursday, July 13, 14 and 15, in the West Park.—Secretary, Mr. G. W. A. Martin, 46 Queen Street, Wolverhampton.

DUNDEE HORTICULTURAL SOCIETY.—Summer Exhibition to be held on Magdalen Green, on Thursday, Friday and Saturday, August 26, 27 and 28; Chrysanthemum Exhibition to be held in the Drill Hall on Friday and Saturday, November 19 and 20.—Secretary, Mr. James M. Martin, 53, West Port, Dundee.

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By J. Birkenhead

Revised by F. Parsons.

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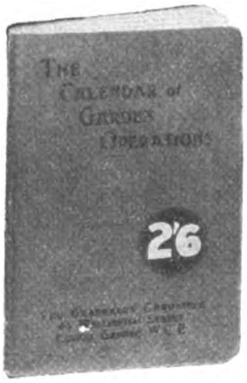

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THE
Gardeners' Chronicle
No. 2051.—*SATURDAY, APRIL 17, 1926.*

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SUPPLEMENT PLATE.

View in the Aroid House at Kew.

Average Mean Temperature for the ensuing week deduced from observations during the last fifty years at Greenwich, 48·5.

Actual Temperature—
The Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, April 14, 10 a.m. Bar. 30.2. Temp. 60°. Weather, Sunny.

The Application of Genetics to the Improvement of Plants.

It is often asserted that present-day horticulturists are less competent than those of former generations, but we think that anyone making the assertion would be hard put to it if called upon for proof. On the other hand, it would be easy to produce an imposing body of evidence to show the remarkable improvements which have been effected in the past generation or two in all manner of garden plants. Nor would it be necessary in order to demonstrate the achievements of modern plant-breeders to claim that every so-called "improvement" is in fact an advance on the older types which they have supplanted. Roses which have lost their sweetness may add to the decorative scheme, but not to the charm of the garden. The right attitude to take with respect to "improved" garden plants is that everyone of them is to be welcomed, not necessarily as a permanent member of our own garden, but as a demonstration of the plasticity of plants and the fertility of resource of the hybridist. Even so, however, it requires only to consider almost any of the commoner plants of the garden, Canterbury Bells, Polyanthuses, and the like to realise how marked has been the progress made in the last ten or twenty years. That progress it cannot be denied has been made almost entirely by men who relied on their natural genius and sought no aid from the science of genetics. Hybridisation, which anyone with the necessary patience may practice, and selection, which requires a seeing eye and a sound knowledge of plants, have been the chief means whereby garden plants have been brought to their present perfection. And these means will continue to be employed; for, indeed, there are no other which can permanently alter the constitution of plants. It is, however, already manifest that if further progress is to be made the old "hit and miss" method rendered almost scientific by the sagacity of the professional plant-breeder, must be fortified by a knowledge of the recently developed science of genetics. For that science has long since passed its probationary stage, is now established on firm foundations and has developed so greatly as to serve as an instrument for research, not only in the abstract problems of heredity, but in the practical problems of plant-breeding. It is, therefore, to perform a useful service to direct the attention of those engaged in or embarking on the practice of plant-breeding to the volume* by Mr. D. F. Jones in which knowledge of genetics applied to plant and animal improvement is set forth in a thorough and yet simple manner. In an interesting survey of the possibilities of plant improvement the author makes the statement, which will doubtless surprise most horticulturists, that plant-breeding is much less highly developed than is animal-breeding. He bases this opinion on the fact that whereas in animals improvement has resulted by taking note of past performance — that is, by pedigree breeding—this method has scarcely been practiced at all among plants; the plant-breeder generally being content to use as his starting points plants which strike his eye and whose past performances are, if not unknown, at all events incompletely observed or recorded. The assertion, whether acceptable or not, directs attention very forcibly to the fact that plant-breeding of the future will be a prolonged and intensive occupation and one which will begin with the isolation of promising strains, their cultivation for at least several generations and their subsequent mating—if their several performances give promise that the union will lead to improvement. Needless to say, the individual plant-breeder will still carry on in the old way, but it requires little foresight to see that before long institutions—large private firms for example—will be laying their plans for long continued genetical researches. Nor would he be sanguine who predicted that this method will eventually prove of great potency in yet further increasing yield and quality in economic plants. After a brief account of the various methods whereby increased crop-production may be attained, the author proceeds to describe the process of fertilisation in plants, drawing attention to important and still insufficiently realised facts, such as the occurrence of seed production in Dandelion and sundry other plants, without pollenation, the stupendous pollen production of wind-fertilised plants—a single plant of Indian Corn (Zea Mays) producing seven million pollen grains, albeit that only some five hundred are required to pollenate one ear. By simple diagrams Mr. Jones illustrates the way in which characters exhibited separately by two parents may be combined in the offspring and in not a few cases may lead to the production of a new race possessing both characters. Thus, for example, there is no reason why the number of early fruiting varieties of Apple should be so few as they are. It should prove a comparatively easy task to combine earliness and a certain heaviness of yield in one and the same variety, albeit that the experiment would take a good many years to perform. The reader interested in genetics will find in the fifth chapter which follows on an account of Mendel's work, an excellent and well illustrated description of the chromosomes, the microscopic carriers of the characters which each plant passes on through its reproductive cells to its offspring. The behaviour and misbehaviour—for the latter is frequent and as is so often the case in other affairs, is more interesting than the former—throws clear light not only on the ordinary cases of Mendelian inheritance, but also on those very numerous cases in which departure from Mendelian expectation are observed. To describe the remarkable misbehaviour of chromosomes—their "crossing over" for example—is out of place here, but any one who has a lingering doubt of the wonderful progress and extraordinary usefulness of genetics as a practical aid in plant-breeding, will have his doubts dispelled by a perusal of this and the succeeding chapter (Chapter 6). The origin of variations—or certain of them—also receive some elucidation in the occasionally aberrant behaviour of the chromosomes. Thus in certain species of Datura and Viola, prolific in variation, the chromosomes of a dividing cell instead of distributing themselves with numerical exactitude between the two daughter cells, may get a little muddled—like inapt dancers in a quadrille—with the result that the distribution is not equal, more chromosomes—like the dancers—get on the wrong side, with the result that the two daughter cells have unlike contingents and hence the reproductive cells formed from these two types are differently endowed with chromosomes and not unnaturally give rise, when fertilisation occurs, to different types of offspring. Thus it has been shown that variations exhibited by a plant may be the outward and visible sign of chromosome misbehaviour. Sterility also, that frequent concomitant of hybridisation, is in certain cases traceable to faulty distribution of chromosomes. But the whole story of these minute persistent constituents of the nucleus of the plant and animal cell deserves to be read and studied; for there is no more wonderful story to be told by any branch of science. The reader unversed in technicalities will find the glossary appended to Mr. Jones's book invaluable and by its aid and a little patience he should have no difficulty in mastering the essentials of the fascinating science of genetics.

Supplement Plate.—The Supplementary Illustration presented with the present issue affords a view in the Aroid House at Kew, which is known officially as No. 1 House. This is one of the largest houses in the Royal Botanic Gardens, and was formerly an Orangery in Buckingham Palace Gardens. Even more than in the Palm house the effect is that of a tropical jungle, for all the inmates are natives of very hot countries and, as the title indicates, include many exotic Aroids. The temperature is never allowed to fall below 60°, and the atmosphere is always heavily charged with moisture, so that at night time, when the outside conditions are cool, condensation takes place and there is excessive drip. The floors are flooded several times daily, and yet on entering the house in the morning all the bare surfaces appear quite dry except for the moisture dripping from the roof and plants. One of the most interesting subjects in this house is Amherstia nobilis, one of the most glorious of all tropical flowering trees. Palms in variety, Dracaenas, Alpinias, Ravenala madagascariensis, Musas, Monstera deliciosa, Philodendrons, species of Pothos, Pandanus utilis, Pitcairnia corallina and Baikaea insignis, are amongst the more interesting of the plants included in this warm house, a full description of which was given in *The Gardeners' Chronicle* of March 28, 1926, p. 222. The circular bed in the centre of the picture is planted this year with Alpinia nutans, which has succeeded the Dracaena Godseffiana, shown in the illustration, for it is found that the Alpinia does better in the enclosure than any other subject and makes growths up to twelve feet high.

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* *Genetics in Plant and Animal Improvement.* By D. F. Jones. London: Chapman and Hall, Ltd., 1925. 20/- net.

Their Majesties at Kew.—On Easter Tuesday their Majesties the King and the Queen spent the afternoon at Kew. It was such an informal and unexpected visit that some of the arboretum staff working in the ground did not suspect the identity of their questioners. Their Majesties entered by the Lion Gate, strolled around the lake, admired the beauty of the Magnolias in the Azalea Garden, and the early varieties in the Rhododendron Dell. The Palm House was visited, and the royal party passed along the main walk, where the beds of Tulips are very gay, to the main entrance at Kew Green, where they re-entered their motor car.

Rhododendron Society's Show.—We have been asked to draw attention to a printer's error which occurs in the *R.H.S. Gardeners' Diary*. The date of the above Show is there given as Monday, April 26, whereas the Show will be held in the Royal Horticultural Hall, Vincent Square, on the following day, Tuesday, April 27.

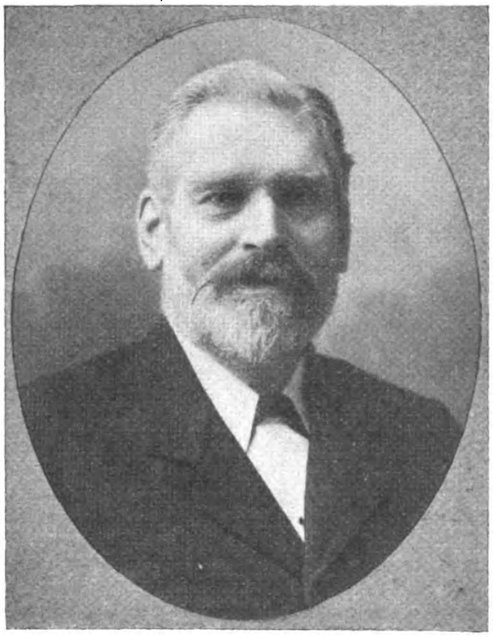
An Echo of the Paris Exhibition.—In one respect London has been more fortunate than Paris with regard to their respective national exhibitions. While the closing of the great British Empire Exhibition at Wembley made no appreciable difference to the amenities of London, the Parisians still have unpleasant daily reminders of their exhibition. Throughout the winter the untidy remains of last year's exhibition have been left lying about all over the once beautiful riverside gardens known formerly as the Cours la Reine, but now called Cours Albert Auber. With the coming of spring and the bursting of the trees into leaf, Parisians have been relieved to note more energy on the part of the contractors in clearing the gardens. This sudden zeal is said to have been instigated by the firm refusal of M. Briand to authorise any nomination to the Legion of Honour in connection with the exhibition until the gardens are restored so far as possible to their pre-exhibition condition. In view of the feeling in Paris over the dilatoriness in clearing the debris of the exhibition, it is felt that, in spite of its success and the convenience of the position, it is not likely that any future large exhibition will be permitted within the city.

R.H.S. and Imperial Fruit Show.—The Royal Horticultural Society is a guarantor for £100 in connection with the Imperial Fruit Show, to be held during 1926. The committee of the Imperial Fruit Show is making special efforts to obtain Royal patronage at the next show.

Munificent Gift to Manchester.—We learn that Mr. E. D. Simon, a former Lord Mayor of Manchester, has presented the Corporation with Wythenshawe Hall and an estate of 250 acres as a public park for the use of the people of Manchester. The Park Committee of the Corporation has formally accepted the gift and passed a resolution unanimously recommending the Council to accept it. Wythenshawe Hall is over three hundred years old and at a very conservative figure the value of the Hall and estate is estimated at £30,000. Mr. Simon is a local business man and a member of the City Council.

Cemetery Art at Dresden Exhibition.—At the Dresden Exhibition, which will open on the 23rd of this month, a corner of the grounds has been set aside and planted as a miniature cemetery, complete with grave-stones, memorials, and all the usual landscape and gardening features. In an English exhibition such a display might be considered a little gloomy, but in Germany the art of the cemetery is taken very seriously, and the result is apparent when visiting the really beautiful "Friedhöfe," with which the larger cities are dowered. Possibly the difference in outlook lies partly in the difference between the restful name "Friedhöfe" and the rather unattractive "cemetery" with its worse alternative, "graveyard."

Peter Barr Memorial Cup.—On the occasion of the London Daffodil Show it is usual for the members of the Royal Horticultural Society's Narcissus and Tulip Committee to award the Peter Barr Memorial Cup to someone who "has done good work on behalf of Daffodils." Following this custom, on April 13 the Committee unanimously awarded this handsome cup for the ensuing year to Mr. William Poupart, V.M.H., of Twickenham, a famous market gardener and one of the first to cultivate the better varieties of Daffodils in quantity for Covent Garden Flower Market. Mr. Poupart has, we believe, been a member of the Narcissus and Tulip Committee ever since it was founded; he has also been a member of the R.H.S. Fruit and Vegetable Committee for many years. We published an appreciation of Mr. Poupart in our issue of October 8, 1921. We join with the many friends of this veteran gardener in congratulating him upon the receipt of a well deserved award.



MR WILLIAM POUPART, V.M.H.

Orchid Show at Messrs Harrods.—During the present week Messrs. Sanders, of St. Albans, have maintained a fine display of Orchids at Messrs. Harrods, Knightsbridge, and their group has been greatly admired, the many fine hybrid Cymbidiums included, proving of special interest.

Ghent Quinquennial Exhibition, 1928.—The Société Royal d'Agriculture et de Botanique de Gand has arranged to hold its next great Quinquennial International Exhibition at Ghent in 1928, to open on April 21.

Plants of Special Interest at Kew.—In the small glasshouse at the end of the Orchid houses at Kew more space is now given to the collection of plants which supply fibres of commercial value. The chief are the Manila Hemp (Musa textilis), the Sisal Hemp (Agave sisalana), the Bow-string Hemp (Sansevieria Kirkii), the Silk-grass (Bromelia magdalense), Raffia (Raffia vinifera), Ramie Fibre (Boehmeria nivea), and the Mauritius Hemp (Furcraea cubensis). The more important Rubber plants are also included, and, during the holiday, many visitors evinced interest in the Wardian Case containing thirty-five growing seedlings of the Para Rubber, soon to be sent to the Botanic Garden at Peradeniya. There is also a large specimen of Hevea braziliensis, and smaller examples of the African Rubber Vine (Landolphia florida), and the West Africa Rubber Vine (Funtumia elastica). Beverage-yielding plants include Tea, Coffee, Cocoa and the Paraguay Tea. Adjoining the Cocaine, which is in flower, there are plants of Ipecacuanha, Camphor, Eucalyptus, Clove, Cinnamon and the black Pepper vine. Tropical woods of value and interest to cabinet makers include the Teak, West African Mahogany and the South American Mahogany. The Chaulmugra Leprosy Cure (Taraktogenos Kurzii), the Chicle Gum and the Sapodilla Plum (Achras Sapota) are also on view, while on either side of the door there are small groups of Primula obconica, with a plant of a "near type from China": and of P. kewensis with the parents, P. floribunda and P. verticillata, with a type-written card relating the history of the chance seedling which, found in 1899, was named P. kewensis.

Sugar-Beet Growing in Scotland.—An evidence of how very adaptable the soil of north-eastern Scotland is to Sugar-Beet cultivation, the beautiful Silver Rose Bowl offered by Mr. Charles McNiel, Govan, Clydeside, for the best results in last season's Sugar-Beet experiments in Scotland has been won by the Brothers Forsyth, tenants of the farm of Greshop, Forres, Morayshire. The winning Beet weighed fifty-three ounces, from which 9·43 ounces of sugar were obtained. No special treatment or attention was given the crop, which totalled twelve tons seven hundredweights per acre and yielded a net profit to the acre of £26 11s. 5d. Steadily but surely the area under Sugar-Beet continues to extend in the north-eastern counties of Scotland. The counties of Moray, Banff, Aberdeen, Kincardine, Forfar and Fife are all contributing their quota, and this year it is expected a very great extension will take place in the counties named. That the potentialities of the venture are great and the confidence in it thoroughly sound may be gathered from the fact that something like £400,000 is being spent on the erection and equipment of a Beet-Sugar factory in Cupar, Fifeshire, by the Second Anglo-Scottish Beet Sugar Corporation. This company has already a large factory in operation at Colwick, Nottinghamshire, but the company has come to realise that Scotland gives the best results. The experiments made in the past few years in the growing of Sugar-Beet in north-eastern Scotland have amply proved that the venture is a paying proposition, and that there are large areas well-adapted and favourable to the growth of the crop. In Forfarshire, one of the chief Potato-growing counties in Scotland, a great forward movement in the direction of Sugar-Beet cultivation is anticipated this year, the Potato growers being greatly disappointed with the meagre returns received recently for their produce. Those who put a large area under Sugar-Beet last year have done remarkably well, and the result is that this season a much larger number of Potato growers will considerably curtail their Potato acreage in favour of Sugar-Beet.

Grapes from the Argentine.—A consignment of Grapes from Argentine growers arrived in this country recently per the S.S. Almanzora, under the auspices of the Buenos Ayres and Pacific Railway Co. The fruit arrived in excellent condition and found a ready sale at Covent Garden. The shipment was in the nature of an experiment, designed to ascertain what particular varieties of Argentine Grapes are best suited for export and to test the British market. We had the pleasure recently of sampling some white Grapes of the Almeria type, brought direct by a friend from the Argentine, who informs us that this country offers almost unlimited scope for the cultivation and exportation of a variety of fruits suitable for the English market, including Grapes, Pears, Peaches, Nectarines, and Apricots.

National Auricula and Primula Show.—The annual exhibition of the National Auricula and Primula Society will be held at the Royal Horticultural Society's Hall on April 20 and 21. Thirty-one classes are provided, and the James Douglas Memorial Challenge Cup will be awarded to the exhibitor of the best six dissimilar Alpine Auriculas.

Mr. Ernest H. Wilson.—Mr. E. H. Wilson, M.A., M.V.H., of the Arnold Arboretum, whose books, *Aristocrats of the Garden*, and *America's Greatest Garden*, have been published recently by the Stratford Company, Boston, has just received the Veitch Memorial Gold Medal awarded by the Royal Horticultural Society on the occasion of the annual meeting, "for his introductions to gardens and his books." The medal has never before been awarded to anyone in America. Mr. Wilson is also the only person in America that has received the Victoria Medal of Honor, which was awarded him by the Royal Horticultural Society in 1912. He is also the holder of the French Horticulture Medal, the George Robert White Medal and numerous medals awarded by the Massachusetts Horticultural Society.

Summer Show at Great Yarmouth.—The Royal Norfolk Agricultural Association has arranged to hold a horticultural exhibition in conjunction with its show, to be held on the South Denes, Great Yarmouth, on January 16 and 17. The horticultural schedule contains eight-two classes for flowers, fruits and vegetables; sixty-three classes are open to all, and the remainder are for competition among small holders, allotment holders and cottagers. The principal first prizes are £3 for a collection of Roses arranged on a space six feet by three feet; £1 for a dozen Tea or Noisette Roses; and a similar amount for six varieties of Roses, three blooms of each; £1 5s. for a dozen bunches of hardy perennial flowers; £1 for six vases of Delphiniums; £2 for a collection of six dishes of fruits; and £1 10s. for a collection of eighty kinds of vegetables. The Secretary is Mr. W. Kerridge, East Harling, Norwich.

Ken Wood.—At a meeting of the Middlesex Sessions on Saturday, the 10th inst., Sir Herbert Nield, K.C., M.P., announced that by the generosity of Lord Iveagh, at the expiration of ten years, the remaining seventy-six acres of Ken Wood, including the mansion, were to become public property.

Royal Gardeners' Orphan Fund.—The Annual Festival Dinner of the Royal Gardeners' Orphan Fund will be held at the Hotel Victoria, Northumberland Avenue, W.C. 2, on Wednesday, May 26 next. The Chair will be taken by G. J. Nicholls, Esq., C.C., F.R.C.I., who is Chairman of the Central and Spitalfields Markets Committee. It will be remembered that quite recently Mr. Nicholls conducted H.R.H. the Prince of Wales around the Central Markets on the occasion of an early morning visit.

Wasps as Fly Killers.—*The Observer* of last Sunday, in recording that on the previous day Susanna Butler, of Lime Grove, Lime Tree Road, Norwich, was elected a member of the College of Pestology in recognition of her work in connection with the destruction of vermin, gives her observations of the toll wasps take on flies. She stated "I have found wasps the very best fly exterminators, and the toll they took of fruit was negligible. I watched twenty-three wasps' colonies in our garden during one summer, and for months every wasp took in a fly. For every twenty-seven wasps that went in carrying a fly twenty came out carrying the shell of a fly. They flew out in a straight line for about two or three yards, rose into the air and dropped the flies on our Crocus bed, covering about one-eighth-of-an-acre, some little distance in the rear of the nests. At the end of the season the ground was covered with fly shells, some with their heads off, and others minus heads, wings and legs. In the cow-shed we had small Eucalyptus trees, and no flies ever came in."

Appointments for the Ensuing Week.—Tuesday, April 20: Royal Horticultural Society's Committees meet (two days); Winchester Gardeners' Association's meeting. Wednesday, April 21: Midland Daffodil Society's show (two days); Herefordshire Spring Flower show; Royal Gardeners' Orphan Fund meeting. Thursday, April 22: Paisley Florist' Society's meeting. Friday, April 23: National Rose Society's show: Manchester and North of England Orchid Society's meeting.

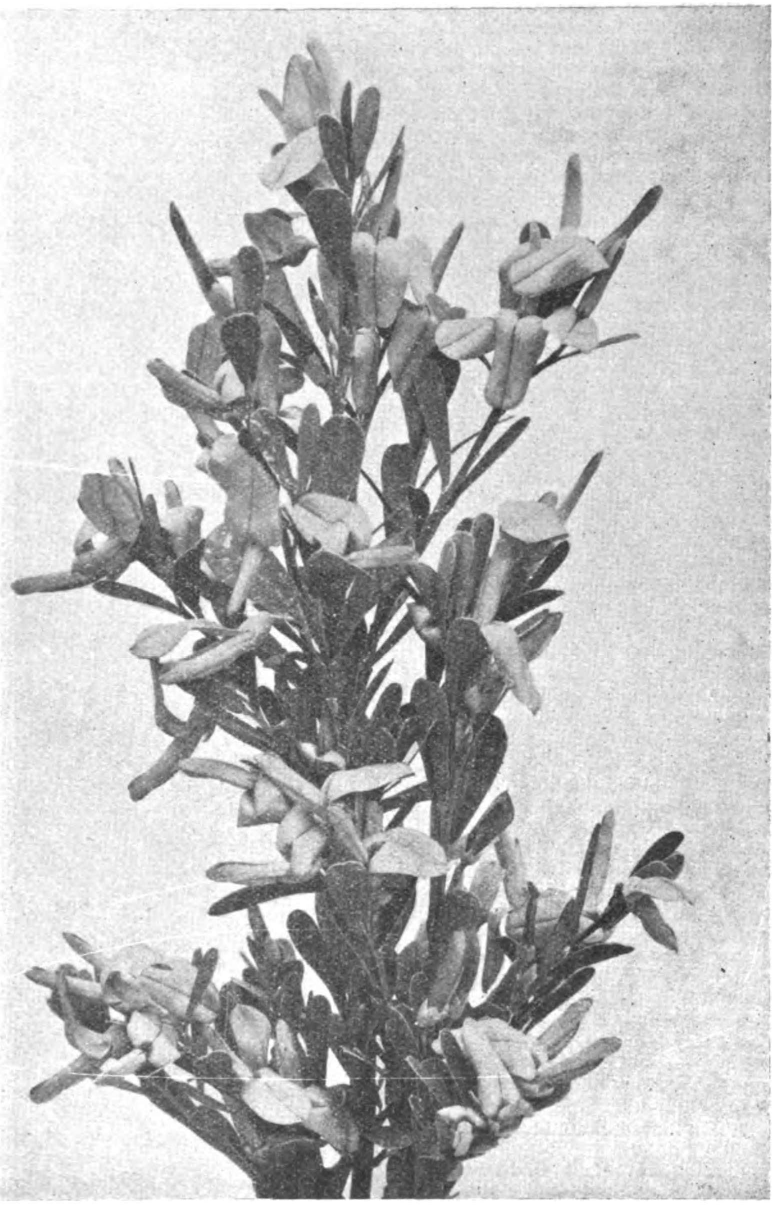


FIG. 142.—TEMPLETONIA RETUSA.

R.H.S. Award of Medal, April 7. Flowers deep orange-red.
Shown by Lieut.-Col. Messel, Nymans, Handcross (see p. 277.)

"Gardener's Chronicle" Seventy-five Years Ago:—*Pelargonium Exhibition.*—We understand that some of the growers of Pelargoniums complain that the prizes offered by the Horticultural Society are not sufficient to defray their expenses. Upon this we may remark that the prizes this year are the same as were offered last year; and but one person then complained of the amount. The only difference is that the number of plants to be shown this year in A and B is twelve and nine instead of six. We should not have imagined that this would have made any material addition to the cost of transport, and the small addition would, we should have supposed, have been more than compensated for by the new regulation, under which nurserymen and private growers exhibit independently of each other. At all events, the Committee did not intend to place the growers in a worse position. Quite the contrary. We have therefore no difficulty in stating that the winners of prizes will, in addition to the medals they may gain, be paid any reasonable expense to which they may be put beyond what was incurred in former years. *Gard. Chron., April* 19, 1851.

Publications received.—*Roses and their Culture*, by S. C. Hubbard; *The Strawberry*, by Samuel Fraser; *Tomato Production*, by Paul Work. Orange Judd Publishing Co., Inc., New York, and Paul Kegan, Trench, Trubner and Co., Ltd., 68, Carter Lane, E.C.4. Price $1.25 each. *Life of Plants*, by Sir Frederick Keeble, F.R.S. The Clarendon Press, Oxford. Price 5s. net. *A Monograph of the British Lichens*, Part II, Second Edition revised, by Annie Lorrain Smith. British Museum (Natural History), Cromwell Road, S.W.7.

The Week's Work.

THE ORCHID HOUSES.

By J. Collier, Gardener to Sir Jeremiah Colman, Bart., Gatton Park, Reigate, Surrey.

Dendrobium.—Many plants of the deciduous and semi-deciduous Dendrobiums of the D. nobile type have passed the flowering stage, and are developing fresh growths from the bases of their stem-like pseudo-bulbs. So soon as it is observed that new roots are forming from the base of the pseudo-bulbs, any necessaryr epotting may be done. Plants that are established in sound, sweet material need not be disturbed, but a little of the compost should be picked out carefully from between the surface roots and fresh material added. Specimens growing in compost that has become exhausted should be taken out of their receptacles, have all the old compost shaken from them, the useless back pseudo-bulbs and decayed roots cut away, and be potted afresh. Young, vigorous plants requiring increased rooting space should be given a shift with as little root disturbance as possible. Pots or pans form the most suitable receptacles ; they should be well-drained and of sufficient capacity to accommodate the plants for two seasons. A compost consisting of equal parts Osmunda fibre and A.1. fibre, with a sprinkling of crushed crocks, and some chopped Sphagnum-moss is a suitable rooting-medium. The potting should be done firmly and with care, working the materials well amongst the roots, leaving a little space below the rim for watering. In some establishments a house is set apart for Dendrobiums, but this is not necessary where other warm Orchids are cultivated, or where an ordinary plant stove exists. During the growing season these Orchids need plenty of heat and moisture and a buoyant atmosphere.

Watering and Syringing.—The application of water at the roots of newly-potted specimens needs to be done with the greatest care. During the plant's early stages of growth, only sufficient moisture should be afforded to keep the soil damp, as the new shoots are very apt to damp off at this stage through an excess of moisture. As the young growth develops and the new roots ramify in the compost, the amount of water should be increased gradually. Frequent damping of the house is necessary during bright days, and overhead syringings will also be beneficial at such times ; the syringing should be done sufficiently early for the foliage to become dry before night time arrives. The old pseudo-bulbs that have been taken off may be employed for propagating fresh stock ; cut them into short portions immediately in front of a node that has failed to produce a flower, and place several in a pot filled with chopped Sphagnum-moss.

THE KITCHEN GARDEN.

By F. Streeter, Gardener to Lord Leconfield, Petworth Park, Petworth, Sussex.

Onions. —If from any cause the seeds for the main crop of Onions have not been sown, this should be attended to at once. Prepare the ground as recommended in an earlier calendar. Onions raised from seeds sown at the beginning of the year and grown on in pots or boxes should now be ready for placing in their final quarters. Great care should be taken in lifting and planting to retain a good ball of soil about the roots. Make the holes sufficiently large to take the whole roots intact. Keep the top growth perfectly upright.

Potatos.—All main-crop Potatos should be planted so soon as possible. Where considerable quantities are grown it is advisable to employ a large staff and get the work finished quickly.

Mushrooms.—For growing the summer supply of Mushrooms, choose a cool site, the north side of a wall for preference. Make the beds ridge-shaped, five feet wide at the base and neatly build up a narrow ridge on top. Thoroughly ram and make the dung as firm as possible. Spawn the beds when they are at a temperature of 80° to 85°. Should the cakes of spawn be very dry, soak them in tepid water before inserting portions of them in the beds of manure, about three inches deep. After about a week, place two inches of fine, maiden loam over the bed and beat it down with the back of a shovel. Cover this with a liberal amount of long stable litter. In very hot weather the beds will require an occasional sprinkling with water. Freshly-made milltrack spawn should be used.

Crops in Frames.—Salads and other vegetables growing in frames should have plenty of air and moisture at all times, placing the lights in position only at night when the temperature falls too low.

Hoeing.— Continue to use the hoe on all possible occasions, both between the growing crops and on ground where the crops are not yet through the soil.

THE FLOWER GARDEN.

By F. C. Puddle, Gardener to Lord Aberconway, Bodnant, Taly-Cafn, North Wales.

Pentstemons.—Plants of the bedding and large-flowered varieties of Pentstemons which have been struck from cuttings and wintered in frames may now be planted out-of-doors. Pentstemons are invaluable for garden decoration and give a charming effect when grouped in flower borders, in the front of shrubberies or massed in beds. The smaller-flowered section, which includes Southgate Gem, Myddleton Gem, Mrs. Fulford, Mrs. Goldring, the newer Castle Forbes, and the violet-purple Kellermannii, are comparatively hardy, and usually withstand the winter in the milder parts of the country. Such plants should, if leggy, be pruned back to about six inches from the ground, but shapely specimens may be left unpruned to produce an early crop of flowers.

Violas.—Violas which have been propagated from cuttings, either in frames or on out-door beds, should now be planted in their flowering positions so that they may become established before warm, dry weather sets in. If not already done, a liberal dressing of well-rotted manure or leaf-mould should be dug into the soil before planting, as this will help to conserve the moisture in the soil, in addition to affording nutriment to the plants.

Dianthus Allwoodii.—These hardy and easily-grown plants are very effective when used as an edging to beds having brick or stone pathways between them, and they are especially suitable for edging Rose beds having such surrounds. The silvery-grey foliage is charming at all seasons and the wide range of varieties now in cultivation have suitable shades of colour to blend with most varieties of Roses. The white sorts are, perhaps, best for edging beds of yellow Roses, and a very pretty combination may be made by interspersing them with the silvery-leaved Veronica incana. Dianthus Allwoodii has such a robust constitution that it usually succeeds in gardens where border Carnations are a total failure. Plants raised from cuttings may be planted out so soon as they are sufficiently hardened. They are usually at their best the second year after planting.

Tender Shrubs.—Shrubs of doubtful hardiness which have been wintered in pots in cool houses or frames may now be planted in their permanent positions. The majority of these subjects benefit by the shelter of a wall, and when this can be afforded, the chances of permanent success are greatly increased. The plants should not be planted directly against the wall but from six to nine inches from it. Loosen the roots from the ball of soil before planting, and, if the shrubs have become pot-bound, it may be necessary to wash the soil from the roots. Many plants are ruined by being planted in a pot-bound condition without taking the precaution of loosening and spreading out the roots. The number of beautiful shrubs suitable for planting in sheltered positions is so great that to give anything like a comprehensive list is beyond the limits of my space, but the following should be included :—Fremontia californica, Corokia Cotoneaster, Hydrangea quercifolia, Embothrium coccineum, Buddleia Colvillei, Crinodendron Hookeri, Desfontainea spinosa, Solanum crispum var. autumnale, Fabiana imbricata, Eucryphia cordifolia, Carpenteria californica, Fendlera rupicola and Abelia floribunda.

HARDY FRUIT GARDEN.

By W. Auton, Gardener to Viscount Elveden, Pyrford Court, Woking, Surrey.

Woolly Aphis.—This is probably the worst pest that Apple growers have to contend with and the fact that there can be migration from the trunk to the roots in autumn, and from the roots to the trunk in spring, makes it very difficult to eradicate. Varieties with a soft bark, such as Ribston Pippin, Blenheim Pippin, Cox's Orange Pippin and Lord Suffield suffer most severely from attacks, but all varieties of Apples are subject to its ravages, and the Pear is sometimes affected. Like all aphides, it feeds by puncturing the epidermal tissue and sucking the sap. Not only is the tree weakened, but swellings result which later crack and form crevices, giving ideal protection to the aphides and making combative measures still more difficult. Eggs laid in these crevices are proof against sprays and birds, and hatch in the first warm days of spring, the aphides quickly developing to carry on their destructive work. The larvae from these eggs become wingless viviparous females, which give rise to great numbers of young, so-called, lice, hence it is clear that where infestation is known to exist their destruction in the spring is a highly important factor in their control.

Vines.—The growth of vines on walls facing south is already very active, and disbudding should be commenced so soon as it is possible to see the best-placed growths. Sufficient shoots should be left to ensure an ample covering of foliage, but overcrowding should be avoided, as leaves which are not able to develop fully and become hardened by exposure to sunshine are susceptible to mildew. Fruit-bearing growths will, of course, be stopped at the second leaf beyond the bunch, but leading growths should be tied in to whatever extension is necessary.

Peaches and Nectarines.—The disbudding of Peaches and Nectarines is an important item of current work, governing, to a large extent the future of the tree, and so soon as the young growths are sufficiently advanced to handle, the process of thinning should be begun by the removal of one or two growths from each laid-in shoot. Judgment should be used, and the operator should be guided not only by the weather conditions, but also by the strength and vigour of the tree. If a tree, for any reason, shows sign of weakness the work should be deferred for a time to encourage root action. Where normal growth is proceeding, continue the process of thinning at intervals of a few days, spreading the work over a period of two or three weeks so as to avoid unduly checking the tree, and bearing in mind that in the final disbudding the object should be to leave a shoot beyond every fruit, and sufficient other well-placed shoots to constitute the wood for next year's crop. When an abundant crop is set, and this appears to be the case on most trees this season, partial thinning of the fruits may be done, at the same time leaving always ample fruits to choose from when they have made rather more growth. During periods of bright weather regular afternoon syringings should be practised, using rain water for the purpose. Should aphis make its appearance, spray immediately with Quassia extract, but the systematic use of the syringe is a good preventive, and clear water rightly applied in the first stages of attack is more efficacious than any insecticide after leaf-curl has taken place.

FRUITS UNDER GLASS.

By T. Pateman, Gardener to Sir Charles Nall-Cain, Brocket Hall, Hertfordshire.

Strawberries.—Where Strawberries have been grown on in the fruit houses it will be wise to remove them to a shelf near the roof-glass in a cooler structure so soon as the berries are approaching ripeness. More air can be admitted to these cooler houses, and this will greatly enhance the flavour of the fruits. So soon as it is noticed that the berries are colouring, reduce the amount of water at the roots to a minimum. Plants for successional batches will need close attention in watering, especially on bright days when drying winds prevail, or they will soon suffer harm. Watch for green fly on the later plants and take the necessary steps to combat the pest.

Peaches and Nectarines in Pots.—The fruits of pot Peaches and Nectarines which were started into growth during December, are passing through the stoning stage, and they will appear to make very little progress until this is over. At this stage the grower should give a little extra care to cultural details. The trees should never be allowed to become excessively dry at the roots neither should they be overwatered to sour the soil. By examining the trees carefully several times daily during hot, dry weather, the watering may be regulated correctly. A little lime added to the water occasionally will be very beneficial to the trees whilst the stones are forming. If the weather is mild, the night temperature may range about 60°, but when closing the house in the afternoons the temperature may rise to 75° or 80° with solar heat. The growths should be pinched at the sixth or eighth joint, so that the fruits may be exposed to the sun's rays. It is essential after pinching the shoots to keep the foliage free from insect pests, such as red spider and green and black aphides; the former may be kept in check by syringing the trees vigorously with rain water during hot, dry weather, while the latter may be eradicated by fumigating the house; during dull, sunless weather, I never favour too free a use of the syringe, but rather rely on damping all bare spaces lightly to promote atmospheric moisture.

PLANTS UNDER GLASS.

By John Coutts, Assistant Curator, Royal Botanic Gardens, Kew.

Double White Primula.—Where this plant is still grown, and it is desired to increase the stock, some of the bottom leaves should be carefully cut away, and a mixture of sandy leafy soil and a little chopped Sphagnum-moss mounded up around the stems. When the shoots have rooted into this compost they should be detached and placed singly in small pots. After being well-watered and stood on the open bench for a few hours, they should be placed in a close case for a few days.

Jacobinia chrysostephana and J. coccinea.—These two exotics are valuable for a winter display, and may be propagated now by means of cuttings, which root easily in a warm propagating case. In common with all the Acanthads, these two species are propagated readily from internodal cuttings, which is a distinct advantage as cuttings with two leads may be inserted, thus obviating the need for pinching, which both these plants resent; they do best when allowed to grow freely without stopping. They should be grown in a temperature of 60° until they are in flower, when they may be transferred to a warm greenhouse. J. chrysostephana requires watering carefully at all times, but is so beautiful that it is worth extra trouble in its cultivation; both plants are subject to attacks of mealy bug and Begonia mite, which must be carefully guarded against. Both species succeed in any good potting compost. Jacobinia magnifica and its varieties carnea and velutina, are much easier plants, and are very useful for furnishing a display of flowers during the earlier summer months; although, unlike the other two species, they do not have such a definite blooming season, and may be flowered almost any time according to the period of propagation; plants propagated last August are now fine specimens. When planted out in an intermediate house they make huge bushes.

Peristrophe speciosa.—This greenhouse plant is very useful for winter flowering, and it is one of the few indoor subjects that suffers little or no ill effect from fogs. It grows freely in any good potting compost, and only requires cool greenhouse treatment during the summer as it is a native of the Himalayas. A stock is easily propagated at this season by means of cuttings.

Planting Evergreens.—From the middle to the end of April is the best time for planting a great variety of evergreen trees and shrubs, and where preparations were made some time in advance, it will facilitate matters when the actual planting commences. If the weather should be dry do not neglect these newly-planted shrubs, but give them copious supplies of water at the roots and an occasional spraying overhead in the evenings. When fairly large specimens are transplanted it is better to fasten them for a season, at least, to stout stakes, so that they will be secure from disturbance by high winds.

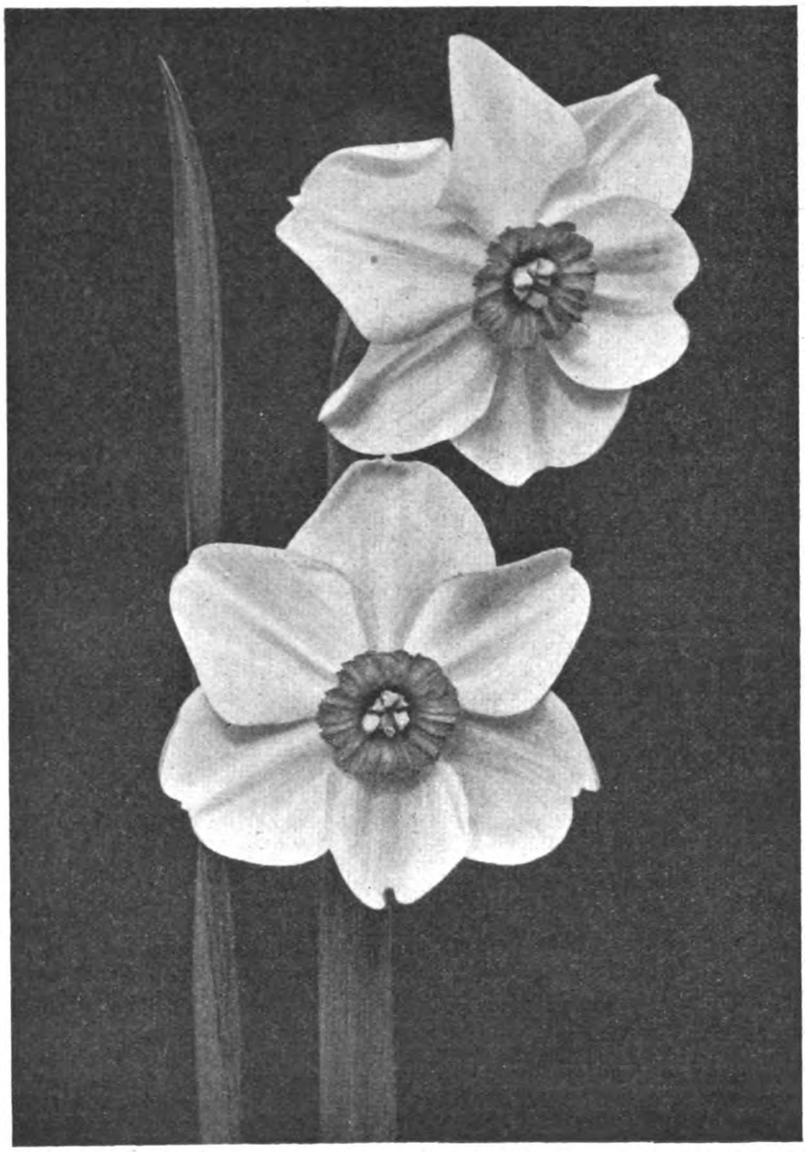


FIG. 143.—NARCISSUS DITTY.

R.H.S. Award of Merit, April 7. Flowers white, with red-rimmed orange eye. Shown by Messrs. Herbert Chapman, Ltd. (see p. 278.)

FOR NORTHERN GARDENERS.

By A. T. Harrison, Gardener to the Marquis of Ailsa, Culzean Castle, Maybole, Ayrshire.

Peas and Broad Beans.—The early sowings of these Legumes made in boxes or pots under glass may now, after hardening them off, be planted out on an early border. Peas should be staked so soon as they are planted; the shelter afforded by the stakes is of great value to these plants when at a tender stage. Lettuce plants raised under glass may be transferred to the open border, or better still, planted out in cold frames or other shelters where their wants in respect to frequent waterings may be attended to regularly. Slugs are usually very destructive to freshly planted Lettuces, and constant attention is necessary to keep these pests in check; the use of lime or powdered alum, as recommended in the case of Cauliflowers, should be resorted to.

Some of the Olearias and most of the Escallonias will thrive in the full blast from the sea, but, naturally, they should have a little support the first season. The Evergreen Oak, Quercus Ilex, also grows well in exposed situations, but, like the Holly, it is by no means an easy plant to transplant successfully; it should be prepared for shifting by transplanting it frequently when in a young state.

Hippeastrum.—These bulbs are now producing their magnificent flowers, and in order to prolong their display they should be removed to cooler quarters so soon as the flowers show colour. If shade is provided the inflorescences will last in perfect condition for some time longer than they would do if left in the full glare of the sun. The weather of 1925 was well suited to the ripening of the bulbs, and not a few are producing two flower spikes instead of one.

HARDY FLOWER BORDER.

MONARDA.

Monarda didyma, the well-known Bergamot, is very effective when massed, and should find a place in every garden. It has scarlet flowers in solitary or twin whorls, supported by a leafy bract, the leaflets being green, tinted red. The variety known as Cambridge Scarlet has stout, well-furnished stems and large whorls of brilliantly-coloured flowers. M. Russelliana has rosy-mauve flowers and purplish bracts and is rather taller than M. didyma and its varieties. This species was introduced in 1823, whereas M. didyma is a very old plant and was first grown in England so long ago as 1656.

M. violacea superba produces its heads of violet-purple flowers freely and is very effective for mass planting.

There are a few other species, such as M. Bradburiana, in blush or white, and pink, introduced in 1850, and M. fistulosa, but they are little known outside botanical collections.

These aromatic plants are indigenous to North America and commemorate Nicolas Monarda, a Spanish botanist, so we may presume that the earliest known species were introduced by the Spanish conquerors of the New World.

Monardas are of very easy culture in any good soil and are not fastidious as to position, but the one point to be stressed is mass planting, otherwise the full beauty of these plants will not be realised.

Propagation is readily effected by division of the roots in autumn. *Ralph E. Arnold.*

A BORDER OF BLUE ANNUALS.

If a suitable selection is planted, blue-flowered annuals will furnish a border with flowers from June until frost sets in in the autumn. There are many varieties of Sweet Peas in shades of blue or lavender blue. Mrs. Tom Jones is a good light blue variety and Jack Cornwall, V.C., a good dark blue sort; whilst lavender blues may be had by planting Powerscourt, R. F. Felton, or Unwin's Lavender, all fine Peas of their colour.

In front of the Sweet Peas may be planted tall, branching and Stock-flowered Larkspurs, Lupinus Hartwegii, and between these blue-and gold-veined Salpiglossis. The Lupins are best sown in the open ground. Drills should be drawn about two inches deep, the seeds sown evenly and the young plants thinned to one foot apart when they are well through the soil. Dust them with old soot on a showery day otherwise slugs may cause much damage.

The next clumps in front of these may consist of blue Cornflower, Nigella Miss Jekyll, one of the prettiest of all annuals, and pale blue Scabious. The two former should be sown out-of-doors, and the seedlings thinned freely. Then may come Stocks and Asters. Of the former, blue Ten Weeks and Giant Perfection, both about eighteen inches high, are splendid, whilst Asters Ostrich Plume, Blue Comet, Giant Ray, Victoria, and the charming single variety, may all be used. Dwarfer plants will be required in the front of the border, and these should include Nigella Double Dwarf Blue, Phacelia Whitlavia, P. campanularia and blue Verbena. All except the last may be sown outdoors about the middle of April. The Verbena should be sown in gentle heat and the seedlings pricked out in boxes, placing them in a warm frame and gradually hardening them until planting-out time arrives. They should be planted last of all as they are somewhat tender compared to the other plants mentioned, but they are so beautiful when in bloom that the extra trouble in their cultivation is well repaid.

For the front rows suitable plants would include Viscaria Dwarf Blue, growing to a height of six inches; Nemophila insignis and N. grandiflora, both about the same height as the Viscaria, and Ageratum Little Blue Star, a very dwarf variety. The latter may be planted as an edging, and is very effective used either for this purpose or grown in clumps. Dwarf bedding Stocks, which grow about ten inches high, may also be had in blue, and are suitable for planting between Nemophilas and Viscarias. Some of the plants towards the back of the border will require neat stakes to support them, if the position is in any respect exposed.

As regards cultural treatment, the hoe should be worked between the plants to destroy seedling weeds and to keep the surface open and friable. This will do more good than watering, unless, of course, the weather should prove very hot and dry, then a good soaking with water once a week would be necessary. All the flowers of the plants enumerated should be picked off as they fade when others will develop, and continue the supply over a long period. *R. W. Thatcher, Carlton Park Gardens, Market Harborough.*

A FEW CHOICE HERBACEOUS PERENNIALS.

The season is not too far advanced to plant herbaceous perennials, provided the ground has been well-tilled and allowed to become consolidated before planting. The following subjects will, if planted now, be a source of delight during the present year in the garden, and furnish cut blooms for house decoration.

Achillea mongolica hybrida (mongolica × alpina) is a most charming plant, and a great improvement on the type, having larger flowers, snowy white and produced very freely in corymbs. Aster alpinus sub-caeruleus floribundus, produces close, dense tufts of olive green foliage, from which arise stout spikes of large, lavender blue flowers, one foot high, during June to August. Aster Perry's White, is undoubtedly the finest white Aster yet introduced; the tall, much-branched stems are furnished with large, pure white flowers. A peculiarity with this plant is that after many days the base of the petals changes to a pretty maroon. The plant grows to a height of four feet.

Paradisea Liliastrum, (Anthericum) the St. Bruno Lily is most decorative on account of the snowy whiteness of its flowers. The plant grows from two-and-a-half feet to three-and-a-half feet tall: it is perfectly hardy, and flowers freely, being most showy when planted in masses.

Bocconia cordata (the Tree Celandine or Plume Poppy), is a noble plant with light grey foliage, and exceedingly graceful panicles of cream-coloured flowers. The season of blooming is June-September. The plant grows five feet to six feet tall, and is a fine subject for planting as bold groups at the back of herbaceous borders.

Cheiranthus Pamela Purshouse (C. alpinus × C. Allionii) has brilliant orange flowers during April until June, and if cut back, flowers again from the end of July until the end of September. It is most effective when planted on banks or hillocks or on the rockery.

Eryngium hybridum Violetta is a new shade in "Sea Hollies," having bold, spiny foliage and branching flower stems, with Thistle-like, cone-shaped heads of a brilliant violet-purple. The spikes are useful for cutting.

Helenium July Sun is a very attractive "Sneezewort," suitable for the middle row of the herbaceous border. The flowers are large, golden yellow and freely produced. The plant forms perfect bushes from two-and-a-half feet to three-and-a-half feet tall. Helenium hybrida Wyndley is similar in habit, but has flowers of old gold shade, shot and stained with mahogany crimson. It is a very showy plant.

Liatris pycnostachya (Blazing Star) is unsurpassed as a border plant. It bears tall, crowded spikes of rosy purple flowers for at least two feet of the inflorescence. It is a most useful subject for growing in dryish borders. The stems attain to a height of four feet.

Mertensia virginica is a charming plant for growing in partially shaded and moist, peaty soil. It produces arching racemes of pretty, tubular, sky-blue flowers during spring and early summer. *W. Logan.*

ALPINE GARDEN.

CYANANTHUS LOBATUS.

Though an old plant in gardens—it was introduced from China in 1844—Cyananthus lobatus has never become common and it is not often seen doing really well. We have had several specimens in these gardens at one time or another, and some of them have prospered for a while only eventually to disappear. The plant appears to do best in a gritty moraine mixture, or a stony, free loam which is naturally moist, in full exposure to sun.

C. lobatus is always worth patience and care where it proves difficult, for it is an attractive and distinguished-looking plant. Its prostrate growths attain a length of about eight inches, the small leaves being set with silvery hairs and lobed at the tips. At the end of each of these shoots appears the single, bell-shaped flower, in form suggestive of a Campanula, to which the plant is allied, the colour being a soft, clear blue. The calyx is curiously inflated and hairy.

C. lobatus, it is worthy of note, blooms from August onwards, so that it is useful in affording interest to the rock garden during a comparatively dull period. *A. T. Johnson, Ro Wen, Tal-y-cafn, N. Wales.*

ADONIS.

The annual species of Adonis do not bulk largely in the affections of the gardener, but the perennial species usually command the admiration of the majority of lovers of flowers. They are not very numerous, and have a strong family resemblance, with their ornamental leaves and their sun-like flowers of gold, with, possibly, a modicum of green to tone down the brilliancy of the showy blooms. They are not, as a rule, difficult to grow, especially if given a rich soil, and they do not resent a little lime in it, especially the popular A. vernalis. Although perfectly hardy, they are all the better for a warm corner, as their early-flowering habit renders most of them liable to injury by late spring frosts. They are not easy to propagate, as the plants resent division and seeds are unreliable.

Adonis amurensis.—This is a lovely and invaluable plant from the Amoor River district, which generally flowers so early as March, and I have even had it bloom in February, when grown in a warm corner under a deciduous Cornus. The flowers usually appear near the ground, but the stem gradually lengthens until it may reach a foot in height. The typical A. amurensis has single, yellow flowers, but there is a double form, not so pretty in the estimation of the writer. There are also said to be white and pink varieties in Japanese gardens, but they do not appear to be in cultivation in this country.

Adonis pyrenaica.—A late-flowering Adonis, blooming in June and July, is much appreciated, and is found in A. pyrenaica, which has lovely and brilliant, golden flowers, differing mainly in possessing complete leaves at the base of the stems instead of the scales presented by A. vernalis. It is also more robust and vigorous in its growth. This species is to be strongly recommended for gardens.

Adonis vernalis.—Our spring Adonis is the best known of all, and has been in our gardens for very many years. It comes from southern Europe and the Caucasus, where it delights in warm slopes of soil largely impregnated with lime. It is about the same height as A. amurensis, and presents the same habit of opening its first flowers near the level of the soil. It is a general favourite, with its golden flowers. It usually lengthens to about ten or twelve inches and blooms in April or May.

Other Species.—These are almost negligible, as they are seldom offered by British nurserymen. Occasionally we see quoted A. wolgensis, resembling A. pyrenaica in flower, but A. vernalis in leaf characters; it flowers in April. A. Chrysocyathus is not offered; it resembles A. pyrenaica. A. Walziana is a hybrid with little to recommend it. *S. Arnott.*

SAXIFRAGA (MEGASEA) LIGULATA AND S. STRACHEYI.

In the very interesting note on "Kew Gardens at Easter," on page 243, reference is made to the above plants in bloom, and a comparison in favour of the former is made. It is quite true that S. ligulata is the finer of the two, but it labours under the disadvantage of not being hardy in many places, and also of coming so early into flower as to be generally crippled in its inflorescence by frost, in the majority of seasons. The gardens of Kew are favoured with a warmer climate than many districts enjoy, but it is the general experience that S. ligulata is more a plant for the cool greenhouse or alpine house than for the average rock garden. The experience I have had with it in the open has been disappointing, and I much regret not being able to grow S. ligulata satisfactorily in the rock garden.

I was much impressed with the remarks on these two plants in the note referred to, and have looked up several authorities to see whether my experience was a common one or not. Among these authorities the most precise is the late Mr. Reginald Farrer, who gives full details of the difference in character between S. ligulata and S. Stracheyi, and also appears to have had a similar experience with myself in point of their hardiness. I need not quote his remarks, which will be found in his *English Rock Garden*, at any length, but he states that S. ligulata has its leaves "fringed at the edge, smooth flower stems and bright, white or pink-edged flowers, erect when expanded," while S. Stracheyi "has hairy flower pedicels and leaf-surfaces always smooth." As Mr. Farrer also states, the two plants are frequently confused in nurseries, and I am penning this note principally with a view to putting those who have not very favoured gardens on their guard against acquiring the very beautiful S. ligulata for planting in the open, even if they have to content themselves with the inferior S. Stracheyi. Perhaps Mr. W. Irving will give us his long experience and knowledge of the genus in regard to the respective hardiness of the two species at Kew; There is no question regarding the hardiness of the other Megasea Saxifrage referred to on page 243—S. cordifolia. *S. Arnott.*

WATER GARDEN.

NYMPHAEAS AND BOG PLANTS.

All Water-Lilies are sun-lovers and grow well in still water, although I have known them to be planted in a gentle,running stream in association with strong-growing plants, such as Typha latifolia and Scirpus lacustris, these last planted so as to break the flow of the water. If a natural pond is not available Nymphaeas may be grown in artificial basins or ponds, the average depth of which should be at least two feet, thus allowing for one foot of soil and one foot of water. The bottom and sides of the pond should be puddled thoroughly with adhesive clay well rammed while in a plastic state. If cement is used instead of puddled clay, especially on gravelly sub-soils, it should be.of a sufficient thickness and stability to prove able to resist displacement by frost, etc.

In the case of large, natural ponds, or where the water cannot easily be syphoned out to render planting in the soil practicable, the best method is to first plant the Water-Lilies in baskets, which should be at least nine inches deep. The baskets should be half-filled with loamy soil in which to plant the Nymphaeas, and then filled with soil, watered and lowered in the positions where the plants are intended to bloom.

The larger and more vigorous-growing Water-Lilies, such as N. Gladstoniana, and the members of the Marliacea group, should be grown in the deeper parts of the pond, and small-growing kinds used for the margins where the water is, as a rule, not more than from six inches to nine inches deep.

The beauty and interest of a Lily pond is greatly enhanced by a well-kept grass bank in which may be planted at intervals of a few feet such bog and moisture-loving plants as Senecio clivorum, which grows two-and-a-half feet tall; Iris aurea, four feet; I. Monspur, four feet; I. Shelford Giant, five to six feet; I. orientalis, four to five feet; I. Kaempferi, the last in many shades of beautiful colours set off by an abundance of grassy foliage; I. Pseudacorus, yellow and white, four to five feet; Lythrum Rose Queen, four feet; Astilbe Arendsii in variety; A. Davidii; Spiraea Aruncus, S. venusta, S. gigantea, the last growing from three to six feet tall and a very effective plant; Trollius in variety; Mimulus in variety; Saxifraga peltata with large, bronzy, peltate leaves and corymbs of white flowers, a very showy waterside plant; Rodgersia podophylla, a handsome foliage plant, the large peltate leaves, having stout stalks three feet high, assuming a coppery-bronze colour with age; Gunnera manicata and G. scabra, both handsome plants with gigantic leaves on stout stalks; Primulas in variety; also the Royal Fern, Osmunda regalis in variety, and Lastrea Thelypteris, two pretty waterside Ferns.

Many may venture to plant the hardy Cypripediums, C. Calceolus, C. pubescens and C. macranthum, also other hardy Orchids, such as Habenarias in the more shady parts where the soil is peat and sand.

There is an abundance of grass-like plants and reeds which are indispensable for waterside planting. These give a tropical effect to the water garden, especially the taller Bamboos, which do well when planted in positions sheltered from high winds.

Very effective displays may be made with aquatics in sunny positions in the rockery by the introduction of half-barrels sunk in the ground to within a few inches of their rims. The barrels should be pitched and tarred to ensure them being water-tight, as well as to preserve the wood, the proportions being one part of tar to ten parts of pitch. The depth of the half-barrels may be from eighteen inches to twenty-four inches, which is sufficient to hold the necessary soil and water.

Whether Nymphaeas are planted in tubs, tanks, ponds or lakes, it is advisable to have submerged plants, such as Potamogeton crispum; Anacharis canadensis and Cabombo caroliniana growing in association with them, as these will help in keeping the water pure. It is also important that gold fish should be placed in tubs, ponds, etc., large or small, as they destroy the larvae of the mosquito and other insects.

The principal rules to observe for the successful cultivation of Water-Lilies are to select a position exposed to full sunshine, and to plant in a compost consisting of two-thirds good, turfy loam, and one-third well-decayed cow manure, made perfectly solid by heavy treading.

Where the water is of considerable depth, say from two feet to three feet, it is better to plant the Nymphaeas in baskets, as already suggested. From the middle of April to the latter part of June is the best season for planting.

The following are but a few of the best Water-Lilies:—for one foot to three feet depth of water, Andreana, brick red; Aurora, various shades, rosy yellow to orange-red; Colossea, pink; Escarboucle, extra large, vermilion-red flowers; Formosa, rich pink; Gladstoniana, pure white, large flowers; Gloriosa, carmine-red; Graziella, reddish-orange; Marliacea carnea, M. rosea, M. chromatella, M. rubra punctata, all with large handsome flowers; Moorei, marbled foliage and soft yellow flowers, and Robinsoniana, rich crimson. For tubs, tanks or small pools, choose Laydekeri purpurata, L. rosea, L. fulgens; odorata alba, o. Exquisite, o. sulphurea, Ellisiana, Froebelii, Andreana, James Brydon, Wm. Falconer, Nymphaea pygmaea alba and N. p. Helvola. These are all pretty, small-flowered Water-Lilies and little gems for the aquarium.

Interesting floating aquatics are:—Aponogeton distachyon (The Water Hawthorn); Azolla caroliniana (Fairy Floating Moss), a pretty, miniature floating plant assuming many tones during its growth; Hydrocharis Morsus-Ranae (Frogbit); Limnocharis Humboldtii (The Water Poppy); Stratiotes aloides (The Water Soldier), with Aloe-like leaves and pretty white flowers; and Villarsia nymphaeoides (the Fringed Buck Bean), with fringed, yellow flowers.

Good hardy aquatics for shallow waters are: Acorus Calamus, Butomus umbellatus, Calla palustris (Bog Arum), Caltha palustris, C. monstrosus plenus, a large, double-yellow Marsh Marigold; C. polypetala, with large, single, golden-yellow flowers, a gem for shallow water; Iris Pseudacorus, I. P. albus and the variegated-leaved variety, Meyanthes trifoliata, with white fringed flowers; Orontium aquaticum (The Golden Club); Pontederia cordata, with pretty, sky-blue flowers; Ranunculus lingua grandiflora; Sagittaria japonica plena; Typha latifolia, with tall, sword-like leaves, and I. augustifolia, a species with narrow leaves.

Of grasses and rushes suitable for the waterside, the best are Carex riparia, in silver and golden variegation; Cyperus longus, Elymus glaucus; Eulalia japonica striata and E. j. zebrina; Glyceria spectabilis and, for the water or bog garden, Gymnothrix latifolia. Many kinds of Bamboos are decorative adjuncts to the water garden. *W.*

TREES AND SHRUBS.

FRUIT TREES AS ORNAMENTAL SUBJECTS.

With Mr. Coombes' emphasis on the need for originality (p. 236), few readers will disagree. Instead of growing those plants for which the garden may be peculiarly suited, most folk are inclined to copy each other, and as he states very truly, this has a tendency to make gardens so much alike in detail and purpose. So far, he is on the right track—albeit a well-worn one. Again, I agree with him when he writes of the great beauty of many fruit trees. M. C. Baltet whom he quotes at length, knew well what he was writing about. At Gravetye, to mention only one instance, there are several standard Pears, a delight both to the fruit grower and the landscape gardener. Such trees are not, however, obtained by planting them in shrubberies, but only by years of good cultivation in the open. Apples, such as the variety Lord Derby, with its numerous blossoms and large, showy petals, placed in a setting of evergreens, might be beautiful, though most artists would prefer to see the bole of the tree. But, is it a fact that our landscape gardeners and others have forgotten or neglected to plant fruit trees in such places in time past? Is it not rather that most of us have learned by sad experience that fruit trees demand better culture and refuse to become objects of beauty when planted amongst shrubs?

Your correspondent goes further. He would plant trees in such places to serve a double purpose, and argues that not only will they beautify the garden but also produce food. The trees are to be lucrative and help the garden to be self-supporting! Most gardeners who have grown fruit for many years know the difference between a starved and a well-fed sample of fruit, both in texture and flavour. Fruit such as can be grown in shrubberies would not satisfy present day consumers, and those who market a portion of their produce know full well the reception it would meet with in the sale room.

As he makes a point of the productiveness of the trees, it may be that Mr. Coombes intends that cultivation, including spraying with Bordeaux mixture or lime-sulphur should be carried out. One spraying with either, whitening or blueing all the shrubs within reach would probably convince the owner as to its desirability! Would it not be more practical to suggest that in planting fruit trees as ornamental subjects we assist them to attain their fullest perfection either as single specimens or in groups, by giving each sufficient space to develop its own character, and so arranged that the necessary cultivation to keep them in sound health is not an impossibility. *J. Comber, Nymans Gardens.*

NOTES FROM A WELSH GARDEN.

The past winter—perhaps the worst within memory for these parts—pursued its destructive career to the end of March by giving us, during that month, some sharp frosts and a long spell of biting north-east winds, the injuries wrought by these being in some respects more regrettable than the casualties of December. Had growth not been so encouraged by a mild week in February, results might have been very different. Rhododendrons of the dwarfer, spring-flowering kinds suffered badly. R. racemosum, R. oleifolium, R. Grievei, R. ciliatum, R. Maxwellii, R. yunnanense and R. Williamsianum either had bloom and bud promptly destroyed or, what was worse, the fresh, young growths many of these had put forth were killed back. Pieris japonica and P. formosa also had their brilliantly-coloured new shoots killed. The buds of Magnolia conspicua were rendered practically useless, and many Clematises, especially C. Armandii and the large-flowered hybrids which were equally premature, are to-day unpleasant looking objects. As for the Mossy Saxifrages these are a failure, even such reliable kinds as S. muscoides Stormonth's variety, S. Standsfieldii and S. Pompadour being browned in foliage and poor in blossom.

On the other hand, many subjects, although a little early, have rarely been better, especially those which were not at their best until the more genial weather of Easter prevailed. Notable amongst these is Cytisus purgans, perhaps the most fragrant of all the Brooms, and C. sessilifolius, whose elegant wands are wreathed with yellow blooms and tender leafage at least a month before their usual date. Berberis Darwinii is, of course, proclaiming itself the first flowering species of its genus, and B. buxifolia nana is very delightful, its deep green foliage hung all over with deliciously-fragrant, orange-yellow "lanterns." Another strikingly beautiful Berberis in flower now (early April) is B. pruinosa, whose arching branches are clustered at every tuft of its bright green leaves with citron-yellow blossoms.

B. verruculosa and B. stenophylla var. coccinea, so striking in orange-scarlet, are in excellent form on the rock garden. Here also Rhododendron impeditum and R. fastigiatum are in full bloom. Kalmia glauca is already opening its pretty rose-pink cups. Daphne Cneorum is promising to yield masses of bloom before these lines are in print, and D. Dauphinii, which scorns the most wintry weather, is still flowering cheerfully, as it has been all the winter. Always the first of its class to show colour here, Azalea amoena is very gay with its multitudes of little, rosy-purple, almost magenta, flowers, and another well-tried favourite which never fails to bloom profusely is the delightful Rhododendron (Rhodora) canadensis.

When on a recent visit to the south of France, I was much impressed by the beauty and distinctiveness of Jasminum primulinum. It was the more disappointing, therefore, to find on my return that my two oldest plants of this species had succumbed to the frost. However, a potful of cuttings in a frame enabled a fresh start to be made forthwith, and in spite of its tenderness and reputation for being a shy bloomer in this country, I hope to give this beautiful Jasmine a further trial—this time against the sunniest wall available.

One of the most beautiful objects in the woodland is a large specimen of Exochorda grandiflora, which, being on a steep slope, is leaning over like a Weeping Willow, its slender, drooping branches terminating in long racemes of snow-white flowers. Some bold masses of double Gorse make an admirable background for groups of Erica mediterranea superba, and E. australis—undoubtedly the handsomest of all the taller hardy Heathers—has already opened the first of its lovely blossoms. It is a matter of no small comfort to be able to satisfy oneself that this superb species will withstand without any injury such a winter as we have just experienced, even as a bush in an open part of the woodland.

One of the most brilliant effects on a bank by the waterside is a couple of square yards of Waldsteinia trifolia, its abundant blossom making a cascade of rich, golden-yellow down to the brink of the water. Also, hereabouts, is a group of Primula chionantha, so curiously appealing with the pale primrose-tinted mealiness of its foliage and stately heads of paper-white flowers. Some patches of P. Juliae are very cheerful closer to the water, with a few clumps of P. Morton Hybrid, P. Veitchii and P. grandiflora, while in rather drier quarters there is a group of the rare and beautiful P. marginata Linda Pope. A new-comer of this last section which is also in bloom is P. Rhenania. This is said to be a hybrid between an Auricula and P. marginata. It is much like P. Linda Pope, but the flowers are not so large and of a darker, more purple, shade.

Shortia galacifolia and S. uniflora, having been full of flower for five or six weeks, are just going off. Near these there is a robust group of the Harebell Poppy (Meconopsis quintuplinervia), which is even at this early date bearing a quantity of buds, many of which will be expanded before mid-April. Here, too is Mertensia virginica, which, having escaped the slugs for once, is adorned with its clear-blue, pendulous flowers. Nearly as blue as the last-named are the drooping bugles of the Blue Comfrey (Symphytum caucasicum) a plant worthy of wider culture, for the colour is decidedly good and blossoming is maintained from March to late summer under almost any conditions.

If Viola gracilis has lost the fascination, of a novelty one can never overlook its great charm at this season, and good as some of its forms and varieties may be, I have yet to see one which retains the peculiar daintiness and refinement of the type. Perhaps Royal Blue is nearer the real thing in that respect than any of them. Another attractive species at the moment is V. canadensis, and in a cool spot, hard-by a colony of Rubus arcticus (even now covered by its rosy-crimson blossoms), are the golden yellow blooms of V. biflora.

But for Anemone Pulsatilla and A. rupicola, both of which are revelling in the dry, sunny conditions in the rock garden, the Anemones of the season are mainly in the woodland. There are still a goodly number of blooms on that charming variety, A. blanda scythinica, but among these alpines A. apennina in its various colours has few rivals at this date. A. trifolia is always distinctive and delightful if kept apart from the ubiquitous A. nemorosa of the common type. A. n. Allenii is still, I think, without a peer in its class, and Mr. Dalrymple is doubtless right (p. 239) in considering that I, in one of my notes, erred in giving A. n. cornubiensis a place of inferiority in this set. One can hardly, perhaps, make comparisons between this variety and Allenii (or Robinsoniana) for it is of quite a different shade but, having looked into the matter, I have little doubt but that my plants of the variety in question are not doing so well as they might be.

The Fritillaries one usually associates with Easter, and this year these elegant plants were very charming at this season. In the woodland F. Meleagris alba is perhaps the most effective and delightful, and it generally appears after most of the Daffodils and before the wood Hyacinths are in full flower. Some of these white Fritillaries have got in among a carpet of Arctostaphylos Uva-ursi, their big drooping bells contrasting well with the deep green foliage of the shrub and its pretty clusters of vivid pink flowers. Another comely little Fritillary now in flower (in the rock garden) is F. Sibthorbiana, a very diminutive species with bright yellow blooms, and apparently identical with the plant often listed as F. armena. *A. T. Johnson, Ro Wen, Tal-y-cafn, N. Wales.*

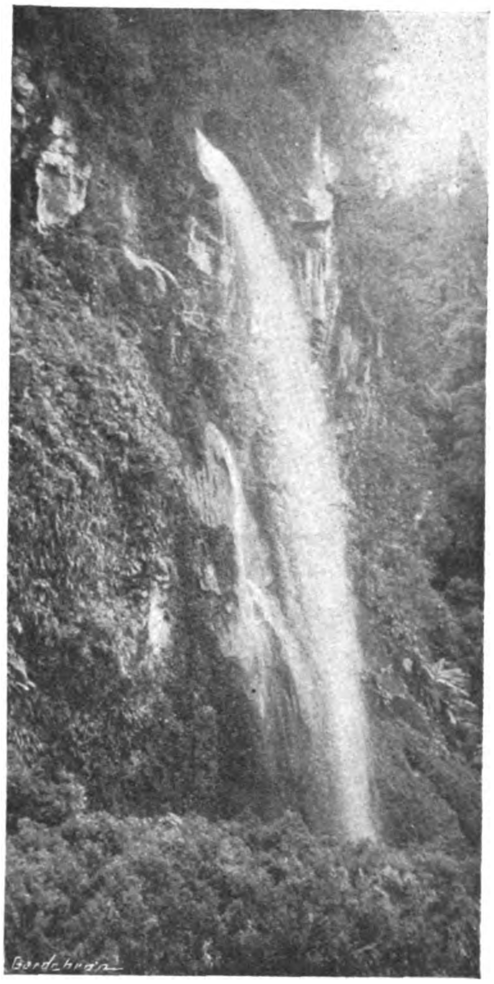


FIG. 144.—THE WATERFALL IN THE TJIBODAS BOTANIC GARDEN.

THE BOTANIC GARDEN AT TJIBODAS, JAVA.

(Concluded from p. 271.)

One of the first trees to attract attention is the Rasamalah (Altingia excelsa. Noronh.) This has a greyish, slender stem, and often reaches a height of 150 feet, bearing its branches far above the surrounding trees, and forming a landmark which can be seen from many miles away. On the branches of this, and, in fact, of all the trees in this moist region, are long, hanging clusters of a greyish-green Lichen (Usnea), which softly swing to and fro in the breeze. This Lichen is often called Beard Moss, or Old Man's Beard, because of its resemblance to the long, white beards of the hobgoblins of our childhood. The Rasamalah is one of the best timber trees of the mountains, and is generally used for buildings in this country. Other common trees are three kinds of Sweet-Chestnut, which bear edible fruits. They are Castanea argentea, Bl.; C. javanica, Bl.; and C. Tungurrut, Bl. There are also several species of Quercus or Oak (Quercus). All these trees often attain astonishing dimensions and reach a height of 100 to 120 feet.

In addition to the foregoing, members of the families Lauraceae and Leguminosae are scattered over the forest. Amongst the former the genera Cinnamomum, Litsea and Phoebe contain some of the tallest trees of their family, whilst amongst the Leguminosae, two only attain arboreal dimensions. One of these is Albizzia montana, Benth., which grows to a height of about twenty-four feet, and is found up to an elevation of 6,000 feet. Euchresta Horsfieldii, Benn, a shrub belonging to the same family, is only known from the Himalayas, the Philippine Isles, Formosa and Java, where it is found very rarely at an altitude of between 4,000 feet and 6,000 feet. The very bitter seeds, which are used by the natives as a medicine for chest troubles and consumption, contain the alkaloid cytisine, and are therefore of very doubtful value.

The family of the Taxaceae contains the genus Podocarpus, represented here by P. amara, Bl., which often reaches a height of 120 feet with a diameter of four feet. Another species P. imbricata, Bl., grows up to an elevation of 5,000 feet, and in the saddle, between Mount

Gedeh and Mount Pangerango, this tree and Schima Noronhae are the tallest trees growing at this altitude. In the jungle undergrowth many remarkable plants are found, and amongst them the different kinds of Melastomaceae are conspicuous. The plants include Omphalodes fallax, Naud., a white-flowering species; Dissochaeta intermedia, Bl., with reddish flowers and violet fruits; Medinilla laurifolia, Bl., with reddish inflorescences; and M. speciosa, Bl., also reddish. The young fruits of this last are reddish-white, but later turn dark violet with purple fruit-stalks. In the family of the Liliaceae, Dianella ensifolia, DC., which bears blue flowers, and, later, dark blue fruits, is worthy of mention.

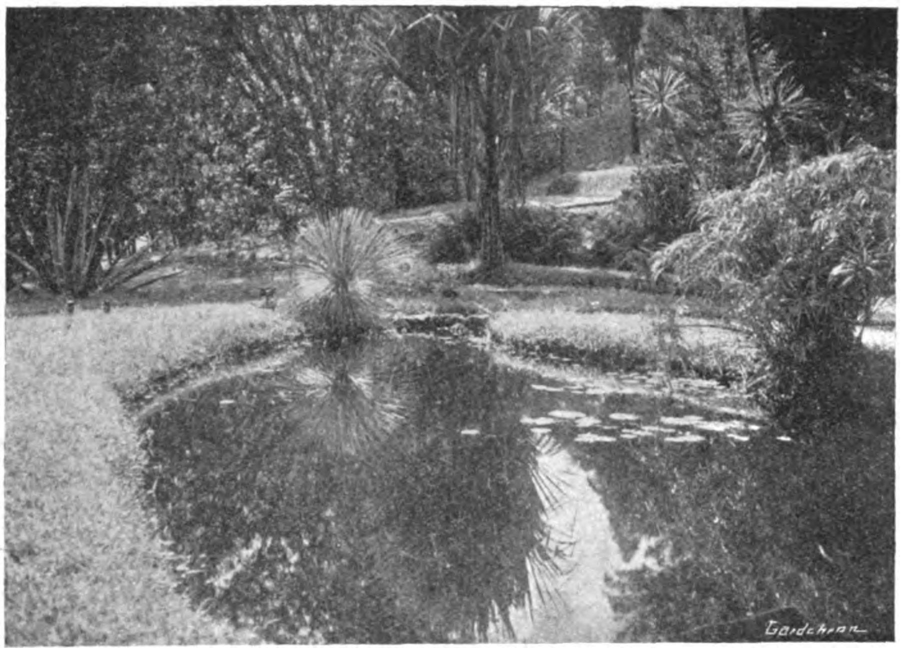


FIG. 145.—TJIBODAS BOTANIC GARDEN: POND AND AQUATIC PLANTS.

In the Palm family the different kinds of Rattan deserve mention. They are most remarkable adaptations, which, forsaking the typical habit of Palms, become climbers. They ascend the highest trees and make the forest impenetrable on account of their spiny leaves, the thorns of which are recurved. It is impossible to make a way through the dense jungle thus formed without the assistance of a strong hunting knife. One of these Rattans, Plectocomia elongata, Bl., has stems with a diameter of three inches, and a length of about 200 feet. It is the giant of its group. The young leaves are covered with a white powder, while the young stems have a thin film of wax. Still more striking are the flower-spikes, which have a length of three feet and are of a deep brown colour. They may be used most successfully for decorative purposes, especially for large rooms. The only non-climbing Palm found at this elevation is Pinanga Kuhlii, Bl., which averages about ten feet in height, but specimens up to twenty feet are sometimes met with. This Palm suckers freely from the roots and forms small thickets. In places where the growth is less dense Alsophila finds a place, and its broad crowns, with their delicate fronds give a graceful touch to the landscape.

The Tjibeureum Falls are reached after a two hours' walk, ascending, and sometimes descending the very steep path (Fig 144). These are situated at a most beautiful spot at an elevation of 4,700 feet, and consist of three falls coming down over a wall of rock with a fall of nearly one hundred feet. The middle fall is the longest, and also carries the largest volume of water. Words fail to describe the beauty of this enchanting spot; the luxuriant growth of Ferns and Mosses which covers the stones, and the sparkling water running through them, makes a scene one seldom meets. This is also one of the places where a kind of Sphagnum-moss grows. It is used for Orchid culture here in the same way as in Europe.

Beyond the falls the main path becomes very steep, consisting, in some places, only of loose stones. It leads either to the crater of Mount Gedeh or to the summit of Mount Pangerango. Along the edge of the track many interesting plants are to be noted. One of the most remarkable of these is Nepenthes melamphora, Bl., many varieties of which group are cultivated in European glasshouses. The species found here is very abundant, and often climbs ten feet or more up the adjoining trees. In some cases, however, it remains on the ground. In such cases the pitchers are buried in the moss, so that their opening is on a level with the moss-surface. The object of this is to entrap insects creeping on the surface of the moss; these wanderers fall into the traps whose slippery walls render it impossible for them to climb out again, so that they are drowned in the liquid which the pitchers contain. In the climbing forms the pitchers are rather rare in the lower portions, but higher up they are produced in large numbers. Here nature has the same object in view, for there are fewer insects low down than near the tops of the trees, where the flowers appear.

The abundance of Orchids is astonishing. True, not all are large-flowering species, but, nevertheless, they are most interesting, and include Oberonia, Appendicula, Agrostophyllum, Phaius, Dendrobium and others. Climbing higher, epiphytical Mosses and Lichens become more abundant, while Ferns of the Hymenophyllaceae group become much in evidence, showing that the mist-belt has been reached.

Some hot-springs are passed at an elevation of 6,270 feet. These springs come out of a rocky wall on the left and flow down into a deep ravine on the other side of the track, producing clouds of steam and making the path slippery and hard to find. Some distance beyond the springs is a cabin, built for travellers to pass the night in, or for the botanist who has to stay there for his scientific work. The name of this cabin is "Kandang Badak," meaning "rhinoceros shed," because in former times this was said to be a favourite place for this animal! But the rhinoceros is a thing of the past in Java; many other animals have had to give way to the advance of cultivation, although wild boars are very numerous in the district, and an occasional panther is to be met.

A little beyond this point the forest gradually changes its character, and near the summit of Mount Gedeh the vegetation consists only of stunted trees, with stems and branches covered with thick Moss-cushions. Most of these trees belong to the Ericaceae, such as Rhododendron, Gaultheria and Vaccinium. After a short time the erratic boulder field is entered and a fine view of the crater of Gedeh is obtained. The rugged grandeur of this is shown in Fig. 146; the black area in the foreground is the crater itself in shadow, while on the right Mount Pangerango stands out clearly in the sunshine. *P. Dakkus, Curator of the Botanic Gardens, Buitenzorg, Java.*

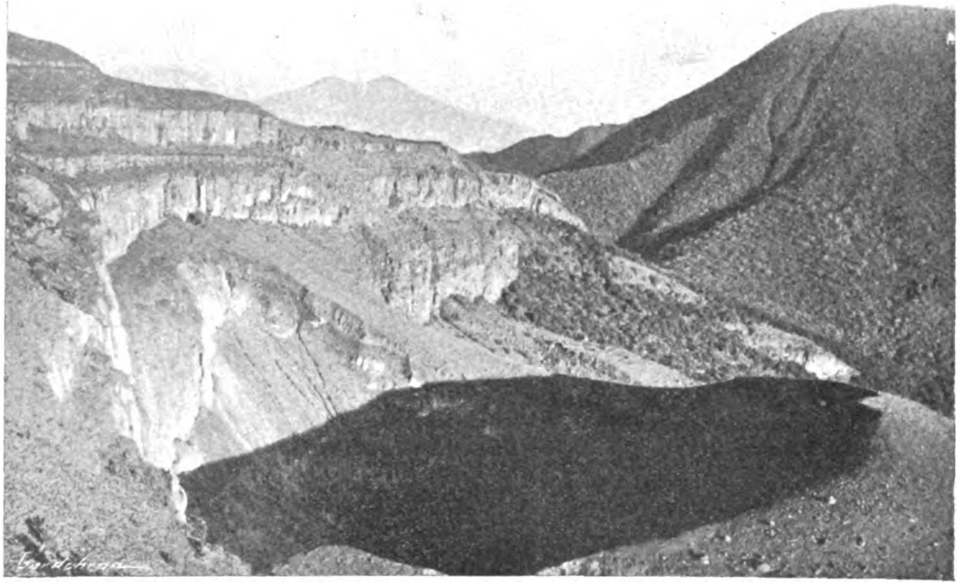


FIG. 146.—TJIBODAS BOTANIC GARDEN: MOUNT PANGERANGO ON THE RIGHT AND CRATER OF MOUNT GEDEH IN THE FOREGROUND.

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THE ROYAL HORTICULTURAL SOCIETY'S NEW HALL.

AT the annual meeting of the Royal Horticultural Society on February 9, the Council stated in their annual "Report" that particulars of the proposed new hall would be given by Mr. J. Murray Easton, A.R.I.B.A., of the firm of Messrs. Easton and Robertson, the appointed architects, at the three o'clock meeting in the Lecture Room on Wednesday, April 7th. In view of the importance of the subject the small attendance to hear Mr. Easton was most surprising.

Mr. C. T. Musgrave, chairman of the Housing Committee presided, and after formally introducing the lecturer, gave some particulars of the steps which the Council have taken in the past and which have led up to the present position. He stated that for sometime prior to 1924 the Council had been fully aware that the present hall was inadequate for the needs of the Society, both from the point of view of the exhibitors, to whom the Council could not grant sufficient space for their groups, and also from the point of view of the Fellows, who were prevented by the crowded state of the hall from examining the exhibits in comfort.

A committee was therefore appointed to consider the whole question, and to enquire into the possibility of the enlargement of the present hall, or of acquiring a site for another hall. On going into the matter, the Committee came to the conclusion that there was no means of enlarging the hall, as the land immediately adjoining was not available. Many suggestions and sites were considered, and there is no doubt that it would have been possible to have obtained a larger site had the Council been prepared to advise the Fellows to move the Society's home to some such district as West Kensington or Hampstead. It was, however, thought that the great majority of the Fellows of the Society would consider it far more satisfactory and convenient if a site could be obtained as nearly adjacent as possible to the present building.

The result was that the Council decided on a site just at the back or east end of the existing Hall, fronting Greycoat Street and Elverton Street, and by a resolution passed at the annual general meeting of the Society on the 12th of February, 1924, the decision of the Council was approved and it was authorised to acquire the site and erect a hall.

After much serious consideration as to the amount of accommodation which it was necessary to provide, the Council asked several architects of repute to submit plans, and its choice fell upon the design of Messrs. Easton and Robertson (see Figs. 147 and 148). In addition to domestic and ordinary architectural work in London and the country, the partners of this firm, Mr. Easton and Mr. Robertson, have made a particular study of big buildings, such as public halls, galleries and museums, with special reference to lighting and acoustical properties. For that purpose they have visited every country in Europe, other than Russia and what used to be called the Balkan States. They designed and carried out the British Pavilion and Restaurant at the Paris Exhibition of last year, which received the highest award from the French Government.

After these introductory remarks by the Chairman, Mr. Easton proceeded to give particulars of the new building. He said that the design of a large hall with its accompaniments is one of the most stimulating problems that an architect can have to deal with. When, as in the present instance, the space is very large and there are special requirements of lighting and of ingress and egress, both of people and exhibits, the problem is as interesting as it is complex.

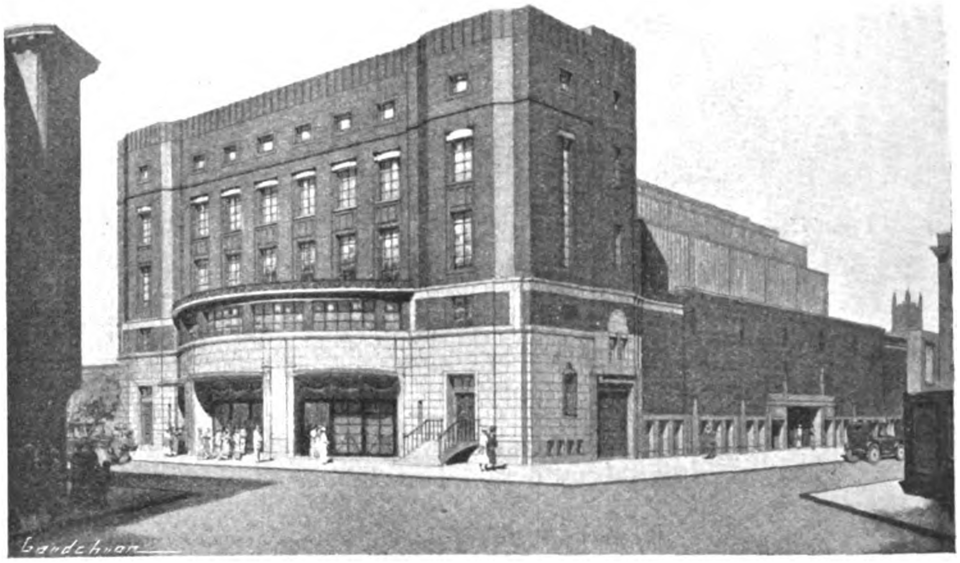

FIG. 147.—THE ROYAL HORTICULTURAL SOCIETY'S NEW HALL: ACCEPTED DESIGN.

The site, exclusive of a ten-foot passage on the east side required by the L.C.C., and of a small triangle at the west end, of which building economy and good appearance prevent the use, has an area of some 24,146 square feet, and the actual exhibition space in the hall proper and dais amounts to some 20,880 square feet. The level of the hall itself is five feet above the pavement, an arrangement arising from the desirability of obtaining a well-lit basement for restaurant, kitchens, etc., and from the fact that the level of the sewer is such that the lavatory accommodation has to be provided not more than four feet six inches below the ground surface. Facilities for quick and easy loading are provided for (over and above the eleven ordinary entrances and exits) by a large goods lift, which will raise exhibits from the pavement to the hall level, and by a sloping way at the east end which will enable the bulk of the deliveries to be handled by trolleys. In view of the size of the hall, Mr. Easton pointed out that even if it were possible to unload at all points directly from the street, the distances which exhibits would have to be carried inside the hall would still make trolleys desirable, and the fewer openings there are in the walls the greater the exhibition space available. This question of loading and unloading has received a great deal of attention, and all possible arrangements were considered. The architects examined the loading facilities in the existing hall and consulted several exhibitors and also an expert on the subject, who advises manufacturing and distributing firms on their loading problems.

Mr. Easton said that the next problem, or perhaps the first problem, presented by the site was the question of where the main entrance and the committee rooms should be placed. A certain minimum depth was necessary for these apartments, and it seemed in every way better to take this space off the short or Greycoat Street side rather than off the longer one facing Elverton Street. The latter gave more space than was required on the ground floor, and consequently would have provided a hall with one or two annexes, which could not have top light. Further, the L.C.C. regulations made it impossible to build higher than forty feet, except in Greycoat Street.

The next question that arose was the method by which the hall should be lighted, and in order to arrive at a decision, the architects made a survey of nearly all the most recent exhibition halls of Europe, and of many in the United States. At the Gothenburg Exhibition of 1923, a system of lighting by tiers of vertical windows appeared to give better results than any other. The Wireless Industries Exhibition Hall, recently completed in Berlin, the Concert and Conference Hall at Breslau, and the Cattle Market at Lyons, are quite recent examples of this method. One or two buildings in the Paris Exhibition of last year were also so lighted, and new baths in Paris show its use in a greatly reduced form but make sufficiently clear the value of even a small amount of well-placed vertical lighting. As in so many cases, it was first tried in this country in a restricted form, for many of the offices of the Bank of England. The alternative method of lighting a large building of this kind is by means of a roof either partly or

Supplement to The GARDENERS' CHRONICLE

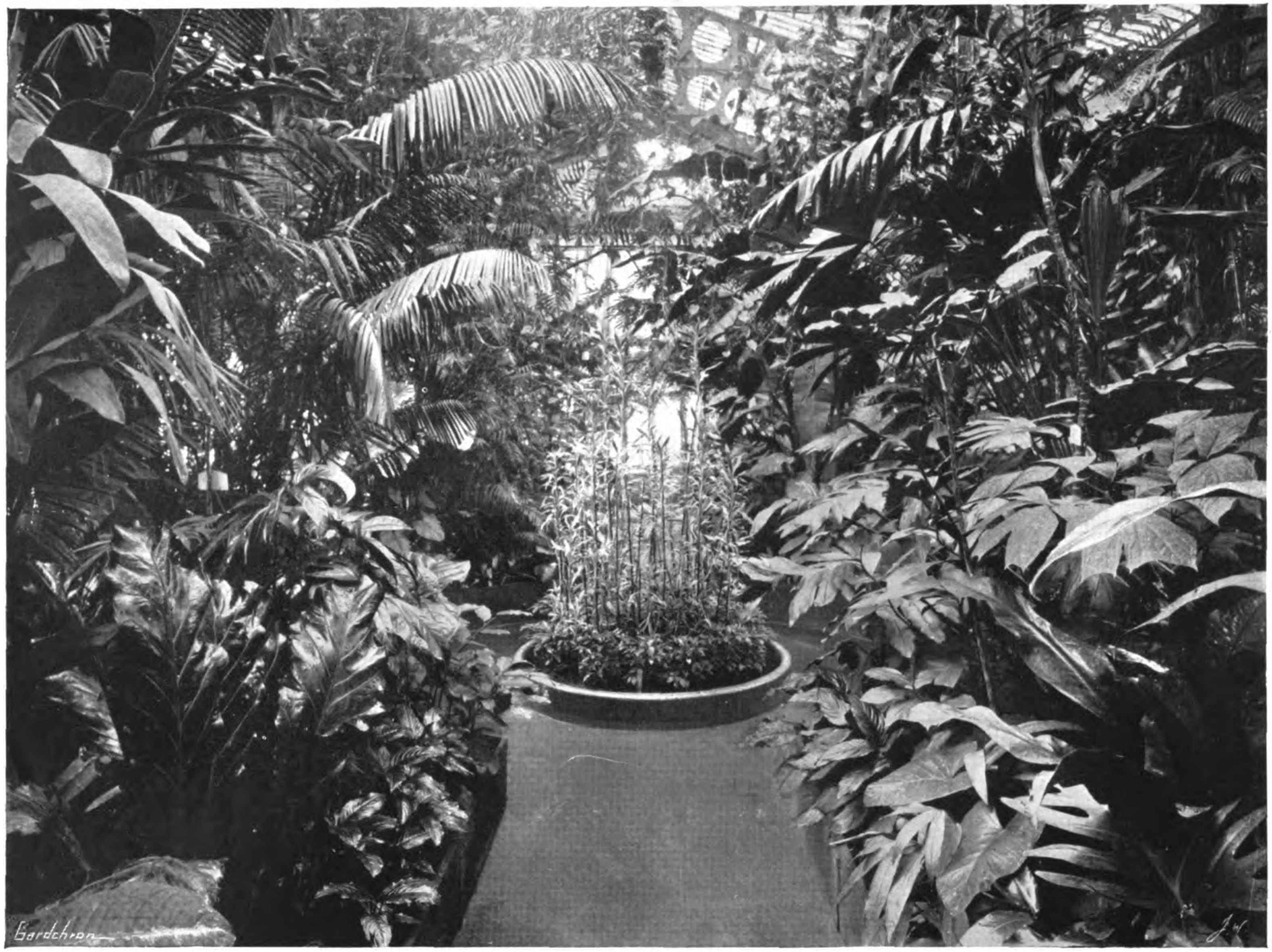

Photo C. P. Raffil

VIEW IN THE AROID HOUSE, KEW.

completely glazed, as in the present hall. Its disadvantages lie in a tendency to leakage, which is always found in roofs of this character, the difficulty of keeping it clean, and the impossibility of regulating the light which enters. A relatively flat, glazed surface receives the full force of the sunlight, and if not obscured in some manner produces an intolerable heat and glare in the summer. On an exceptionally dull day in summer, with a shading on the roof to cope with a bright day, the light is lacking in cheerful quality, especially in London, where soot so quickly settles on all horizontal surfaces. In the system of lighting by tiers of vertical windows, there is clear glass which can very readily be cleansed from outside: on the south side, where sunshine might occasionally prove trying, blinds will be arranged so that in a few minutes the hall can be suitably protected. The horizontal surfaces are solid roofs of concrete, which will greatly diminish the liability to changes of temperature that arise from glass roofs. A certain amount of light in the hall will, however, be derived from sloping glass roofs. This is due primarily to the necessity of avoiding the risk of loss of light from the possible future heightening of the premises to the north of the site. Partly owing to the last requirement and partly owing to the very large span, it was decided to divide the hall into what might be called a nave and aisles. The roofing of the whole hall, which is 120 feet wide, in one span, would have been quite possible but would have entailed fairly large piers projecting into the hall along the outside walls, and it was considered no more objectionable from the point of view of practical convenience that the main truss piers should stand actually in the hall, while from the point of view of appearance the effect will be infinitely more attractive. The side portions are about twenty-four feet high and about twenty-four feet wide, and as they are quite as well lit as the centre part they will be in no sense cut off. The dais portion over the entrance hall contains some 2,000 square feet, and is meant to serve a variety of purposes (see Fig. 149). There is both high side light and top light over the segmental portion of it, and this will provide a considerable well-lit area for exhibits. The part nearer the main hall, which will not be quite so brightly lit, will be very useful as a sort of lounge in which people can overlook the main show, thus relieving congestion on the floor. It will be raised above the main floor about six feet and approached by a wide flight of steps, over which, when required, a platform can be erected. Artificial lighting will be ample, and in order to correct the distortion of colour that takes place under ordinary electric lighting, colour screens will be made use of so as to produce an effect very closely approximating to daylight. This will be particularly valuable in foggy or dark weather.

The problem of making the hall suitable for purposes other than those of the Society has also been considered, and the hall will be made as acoustically satisfactory as its nature permits. Over the movable platform already referred to will be placed a projecting surface to act as a sounding board, and folding doors will enclose the back of the platform to reflect the sound waves forward. The east end wall will be treated with sound-absorbing material to prevent echo.

The requirements of public safety very properly insisted upon by the L.C.C. necessitate numerous entrances and exits both for emergency and ordinary purposes. Eleven five-feet doors will lead from the hall, either directly into the open air or into the entrance hall, while an additional direct exit is provided from the dais. To provide the required number of exits for a seated audience over the whole hall would have involved considerable further loss of space: but it is probable that by an arrangement of screens shutting off the side aisles a licence may be obtained for a fully seated central part. A system of ventilation had been designed to meet the requirements of the L.C.C., and will consist of a supply of warmed and cleaned air pumped into the building at the rate of about one million feet per hour. The openings through which it enters will be kept large so as to avoid any suspicion of draught, and the vitiated air will find its way out naturally by means of openings in the upper part. Some additional heating will be provided by means of hot-water pipes to prevent any risk of down draughts from the colder glazed surfaces. Other comforts and conveniences will include extensive cloakrooms and lavatories in the basement and a large restaurant with a buffet. In connection with the latter there will be kitchens designed on the most up-to-date lines capable of not only providing for the restaurant but of dealing with banquets which may from time to time be held in the hall itself. The arrangement of suitable lifts and communication between these kitchens and the hall in such a way as not to lose space or spoil the appearance of the latter has been one of the most difficult tasks of the architects

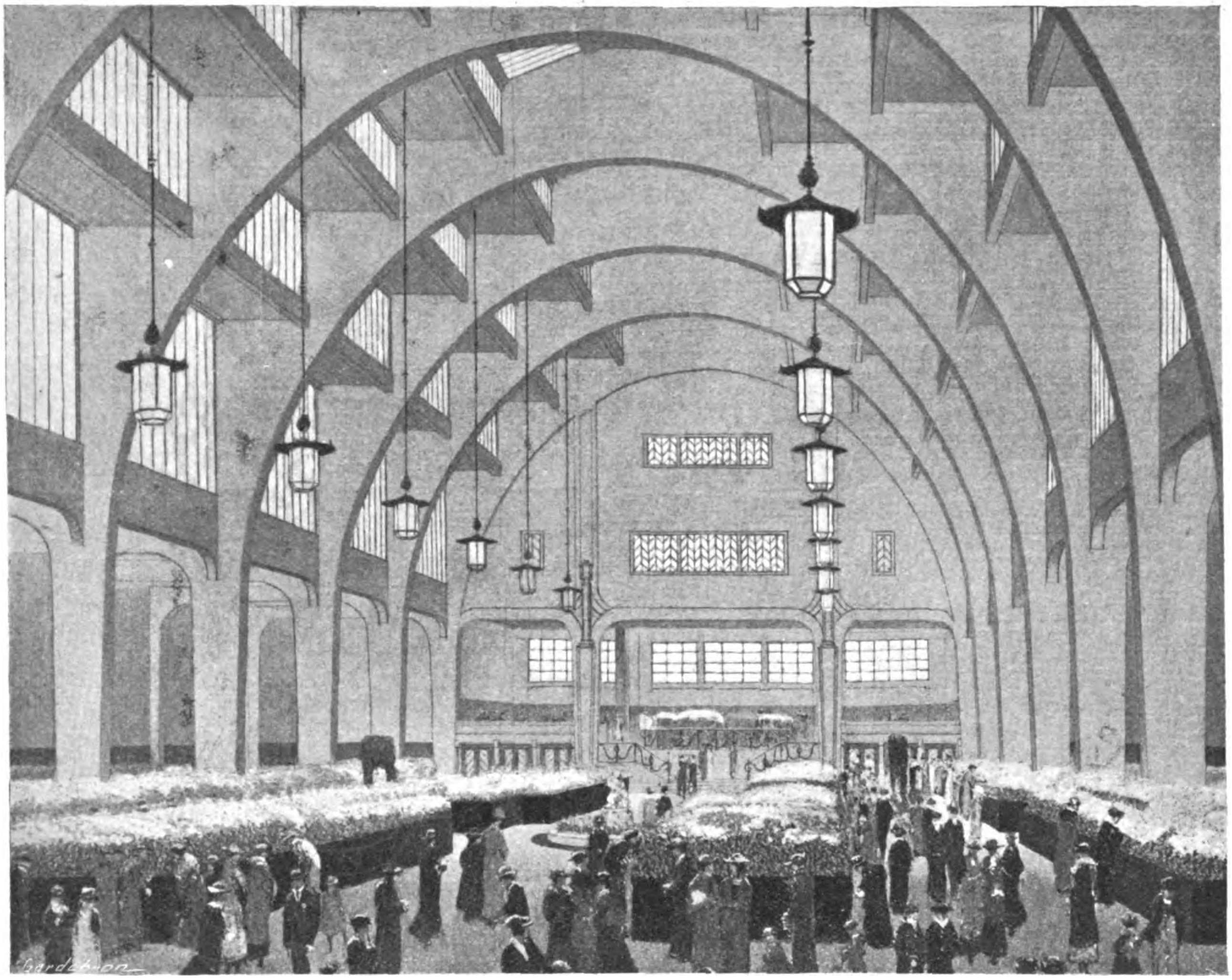

FIG. 148.—THE ROYAL HORTICULTURAL SOCIETY'S NEW HALL: INTERIOR.

but a satisfactory system has been evolved. The rest of the basement is occupied by equally necessary but less conspicuous quarters, such as the heating and ventilating chambers and storage space, while the upper rooms of the Greycoat Street block are laid out as committee rooms. These are in three tiers, and there are three in each storey, some with supplementary accommodation. The lowest storey is so arranged that the rooms can be thrown into one hall provided with an emergency exit and a space in which a cinema apparatus can be installed if required. The rooms of the topmost storey are lit in studio fashion by north lights running across each room, which will give the ample and uniform lighting required by the Floral and other Committees. All those rooms will be served by two lifts, one from the entrance hall for passengers and another from the exhibition hall for specimens as well as passengers.

Accommodation has also been provided in the north-west corner for a caretaker, who will have ready access to the roofs and to all parts of the building.

In designing the exterior of the building (see Fig. 147), the architects have aimed at expressing as simply and clearly as possible the character and function of the hall, and at making the appearance worthy of the Society's headquarters, but with a full regard for economy. The walls generally will be faced with brick above a Portland stone base. The framework of the building will be of re-inforced concrete and in the design of this Messrs. Easton and Robertson have had as consultant Dr. Oscar Faber. Within the hall this framework will be left without any disguise, indeed, the whole effect of the hall will depend on the direct expression of its structure and materials. In the normal way, work will commence early in summer and, all going well, the building should be completed in the late autumn of the following year.

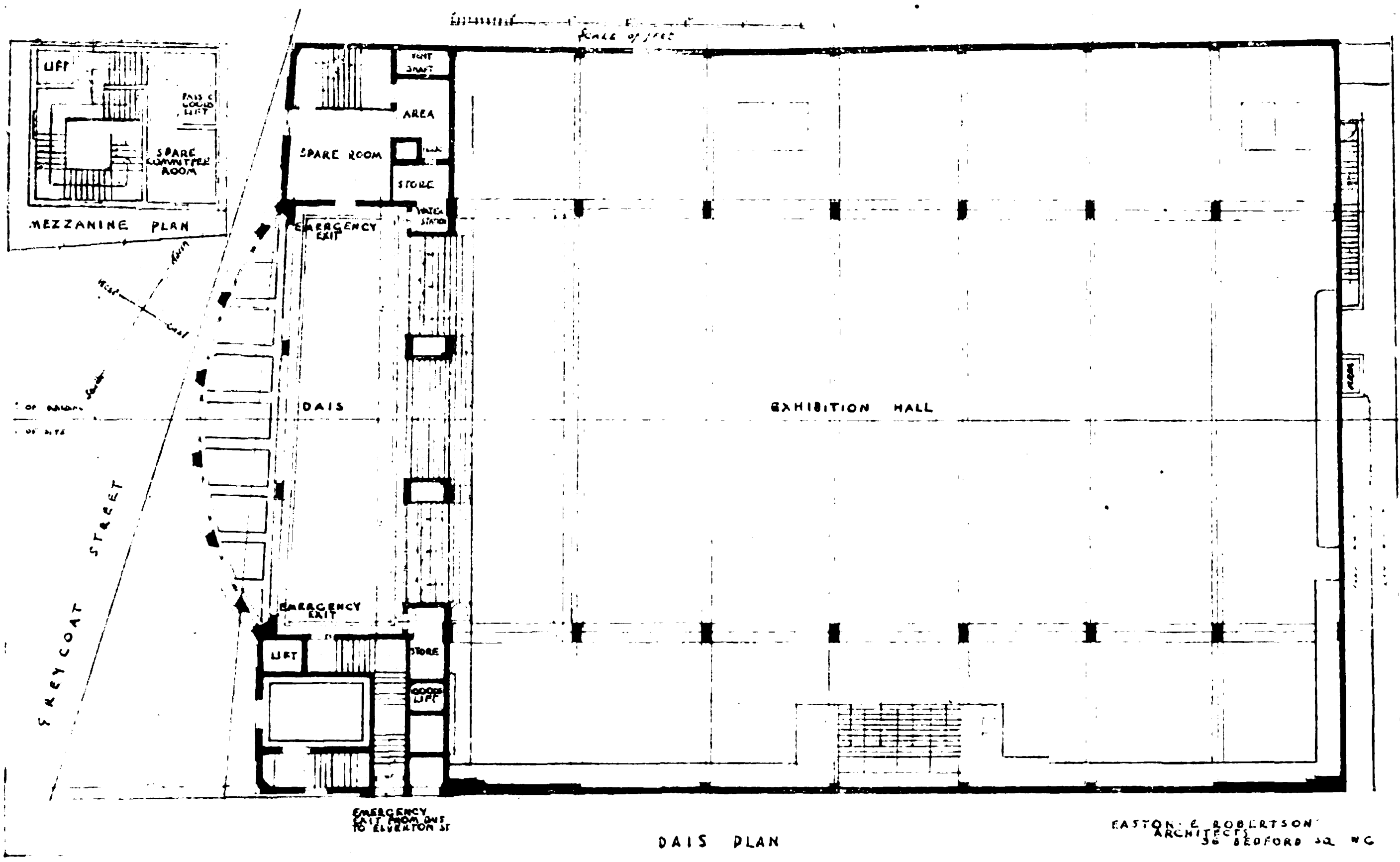

FIG. 149.—THE ROYAL HORTICULTURAL SOCIETY'S NEW HALL: DAIS PLAN.

FLORISTS' FLOWERS.

THE BORDER CARNATION.

The border Carnation is rapidly regaining its former popularity and, as a consequence, many gardeners who have not grown this beautiful flower will wish to do so and those who have restricted their sorts to a few old and tried varieties will desire to obtain greater variety. I have in mind, at the moment, more especially the grower who intends to cultivate the plants in the open border only, and who's first consideration is to obtain plants of robust constitution well able to withstand, without protection, any extremes of climate likely to be experienced in the British Isles.

The reason for this may not be very apparent with summer ahead, but its necessity becomes obvious when, after the plants have been layered, they are put out in the open in October in their winter quarters where they have to remain, no matter what the weather may be. Those who procure new plants this spring need have no fear for their Carnations during the summer, but they would be ill-advised not to look ahead a few months to the winter.

New varieties appear year after year, although the newcomers are often no better, if so good, as many existing varieties, and this means that the prospective grower finds himself faced by a very large selection of varieties from which to choose, and no very reliable guide as to where his choice should lie. A great deal could be written regarding the many excellent varieties now grown, but possibly it may suffice if I confine myself to a few good sorts in each class, which have proved their worth.

The novice probably knows that the border Carnation may be divided, broadly, into the following classes, viz.:—Selfs, Fancies, White-ground fancies, Yellow-ground fancies, Clove-scented varieties and Picotees, the last-named being sub-divided into White-grounds and Yellow grounds. For many years there has been a class known as "Nondescript Fancies," but it has been realised that this class really embraces the true fancies, a fact which the old name did not make sufficiently clear. I have contented myself, therefore, by including such sorts as "Fancies," without any attempt at a descriptive prefix.

The White-ground Picotees do not, unfortunately, succeed very well in the open if left out the whole year, so that I need make no more than a passing reference to them. Fair Maiden, Paula, Perfection and Osprey, are four good varieties, and may be recommended to the grower who intends to give his plants some protection in winter. Flakes and Bizarres, too, are seldom seen to-day, although they were grown extensively at one time, and the grower, unless he be an expert, would be well-advised to restrict himself to those classes mentioned in the previous paragraph.

The Self class embraces so many colours that it is a little difficult to single out any special varieties without omitting others of equal merit. The following, however, are all excellent for border cultivation, and those marked (x) are specially good:—Scarlet: Grenadier, Veldtfire, Fujiyama; Crimson and Maroon: Joan Wardale (x), Gordon Douglas, The King; White: Elaine (x), Bookham White; Yellow: Mary Murray (x), Border Yellow, Eldorado; Pink and Rose: Bookham Rose (x), Salmonea; Lavender: Yvonne Thomas (x), The Grey Douglas (x); Orange and Buff: Dr. Raymond Crawfurd (x), Elizabeth Shiffner, and Loyalty.

The White-ground fancies are not quite so numerous, but very rapid progress has been made in this class during the past few years, and it now contains some of the most beautiful Carnations grown. Probably the most notable introduction has been Mrs. Edmund Charrington, which has been described as one of the finest varieties ever raised. The flowers are large and well-formed and the colour, lavender superimposed on a pure white ground, renders them exceedingly attractive. This variety should, on no account, be omitted from any collection, and other excellent kinds are John Stobart, Steerforth and Jessie Murray.

The Yellow-ground fancies offer such a wide range of choice that we are again faced with the difficulty of selecting those of special merit without omitting others of equal quality and attraction. The following list will serve as a reliable guide and, whilst there is very little to choose between their respective merits, they are all dissimilar in colouring :—Mrs. J. L. Gibson, David Stobart, Centurion, Lady Shackleton, Sheila Gibson, Viceroy, J. Saville, Linkman, Ivan Lowe and Dr. Stone. Mrs. J. L. Gibson is a new variety which has many admirable qualities and is assured of increased popularity in the future when it becomes well-known. Its colour is apricot handsomely marked with lavender, and it was greatly admired at the Chelsea Flower Show last year. David Stobart is, in my opinion, one of the best Carnations obtainable. It possesses a robust constitution and the colour, which is a warm apricot marked with heliotrope, is very beautiful. It is particularly good for the open border and makes a charming vase flower.

Reference has already been made to the true fancies which include all those fancies which cannot be said to possess either a white or yellow ground. They are limited in number but in this class are included some of the most beautiful flowers, and at the same time some of the most remarkable colour schemes in nature. The two most notable varieties are probably James Griggs and Sam Griffiths. The colour of James Griggs is lavender-grey banded with rose, and that of Sam Griffiths is similar although, by no means, identical. Other striking varieties in this class are Maud, Cleopatra, Opalesce, Verdun, and Myrtle Pettigrew.

The attention which has been devoted to the evolution of a race of Clove-scented Carnations during the past decade or so has been attended with considerable success, and it is now possible to obtain them in nearly every colour except yellow. Steerforth, to which reference has already been made, may be placed first, and other good varieties are Fragrance, Salmon Clove, Rose Clove, Pearl Clove and Doris Trayler.

It is a little hard to understand why the Yellow-ground Picotees have not been generally grown in the past. For some reason, the average grower does not seem to have realised that they are perfectly hardy, and that their culture should be attended by just as much success as that of the other classes which I have discussed. They have a charm of their own and it is hard to find flowers so dainty, whilst their value for indoor decoration is unsurpassed. Mrs. J. J. Keen, Togo, Cheam, Exquisite, Her Majesty and Margaret Lennox are all good varieties and should find a place in every collection. *Angus Bennett.*

STRAY DOGS.

ALTHOUGH most property owners and many occupiers of land put up a notice board stating that "any stray dogs found trespassing or uncontrolled on this land will be destroyed," a notice of this sort is of no real legal value, and a man who shoots stray dogs will probably find himself either in a Criminal Court or defending a civil action or perhaps both, if he continue to do so.

THE CIVIL LIABILITY.

In the first place, a civil action is one which is brought by one man against another (in this case) to recover damages in the form of compensation for the loss of his dog.

Many people seem to think that a man is liable in damages if his dog goes on to the property of another man, and that the dog can be shot at sight, but this is by no means the general rule. If the owner were with the animal then he himself would be a trespasser and liable to an action; there is also the case where the dog has a bad poaching reputation, and his master allows him to roam at large, or sends him on to the land. In cases of this description the Court might give damages against the owner of the animal, but in the ordinary way he cannot be made liable unless the plaintiff can prove "scienter," *i.e.*, "that the dog has sufficiently manifested a tendency to do such harm, and that the defendent was aware of the fact." In other words, you must prove that the owner knew that the animal was likely to do the damage it did, in order to obtain compensation from him.

If "scienter" can be proved, one remedy—apart from an action in a Law Court—the property owner might try is that known as "distress damage feasant," which the law allows a man to enforce when animals come on to his land and do damage there. He may retain the animals until he has been compensated for the damage they have done.

As to shooting trespassing dogs, the general rule is that this can only be done *in defence of person or property*. What is meant by defence of the person is easy to be seen and needs no explanation. Defence of property usually occurs where a dog is killed in order to prevent the destruction of game, etc., and the court will require real proof that the killing was necessary to prevent the death of the bird or whatever it be.

The killing must be the only means of preventing the destruction.

As regards civil liability, a trap can be set for dogs, so long as they are not actually enticed into it, as, for example, by baiting it with strong smelling meat, but now under the Protection of Animals Act, this would probably be cruelty to animals, and the owner of the traps liable to a criminal prosecution.

CRIMINAL PROCEEDINGS.

A man has no legal right to shoot a dog trespassing on his land, and therefore, no right to wound it. Thus, if he is not justified in the killing or wounding of the animal, he is—in the eyes of the law—causing it unnecessary suffering, and from this it follows he can be convicted of cruelly ill-treating the dog.

If it can be proved that the gun was fired off in the direction of the animal, not meaning to hit it, but merely to frighten it off the premises, this should be a good defence to a charge of cruelty under the Cruelty to Animals Act or the Protection of Animals Act, otherwise it is clear that the unnecessary shooting of a dog —even if it is trespassing on the land—amounts to cruelty to animals. *Harold A. Sharman.*

REMINISCENCES OF TWO FAMOUS NURSERIES.

(*Concluded from page 272*).

THE Royal Botanic Society's summer show was always well attended and interesting. The Duke of Teck was president, and the Duchess always came to see the exhibits, for she was a keen gardener. Mr. Rivers gave me instructions to prepare a basket of Early Rivers' Cherries and Lord Napier Nectarines for her, and the Secretary, who used to conduct her round, said, "You be there with the fruit and I'll introduce you, so that you can present it." She came with Princess May (now Queen Mary) and they were delighted. She told me she admired Thomas Rivers' work, and had read all his books on fruit.

Beside the London shows, we attended all the chief exhibitions in the provinces ; Brighton, Crystal Palace, Liverpool, Manchester, Shrewsbury, Richmond, Reading, Wolverhampton and York were perhaps the most prominent. We never failed to secure prizes, because we concentrated on orchard-house fruits, and no one could excel our results at the time.

I remember once, at the Crystal Palace, the judges in the Pear classes brought a dish of fruit to me ; "What is this ?" they asked "Beurré Superfin," I replied, promptly. "Are you sure ?" they asked again ; "We were going to disqualify it." "Certain," said I ; and they gave it first prize. When one is constantly handling fruit, more especially picking out samples for exhibition, one becomes so familiar with the varieties that it is almost impossible to make a mistake. At Brighton one year, the judges brought a dish of Beurré Hardy, which they were going to disqualify as untrue to name. The fruits were beautifully coloured, quite out of the ordinary, but on considering them closely, I felt sure they were named correctly. I suggested that they should bring the exhibitor to me, and I asked him to tell me if the fruit had been grown on an unthrifty tree against a warm south wall. "That's right," said he. They cut a fruit open, and sure enough, it was Beurré Hardy ; so he was awarded first prize.

At the Crystal Palace Autumn Show, one year, there was great dissatisfaction about the judging in the Grape classes. In fact, there was no end of a row about it, and the horticultural papers were full of letters from angry exhibitors. Next year, the two men selected to judge Grapes refused to act. The committee did not quite know what to do, but at last the Rev. W. Wilks, Secretary of the R.H.S., came and asked me if I would act with the judges as a referee. I consented, and the judges agreed to the arrangement. It was a difficult task, for there were no fewer than thirteen entries in the class for three bunches of Muscats alone. Anyhow, everyone was satisfied that time.

Brighton Show was always a good one. One year, a Mr. Young, a local brewer, was so captivated by our trees that he came to me and said he would buy the whole of them at our price just as they stood, and take them away. He sent his own men and vans, gave me a cheque immediately after the show, and took the trees away. Another time, at the same place, we had twenty dishes of forced fruits which gained a two-guinea prize. A man came up to the stand, told me he had a shop on King's Parade, and would like to buy these fruits. He offered £5, which we accepted, and I have no doubt it was a profitable investment for him from the advertising point of view.

Talking about advertising reminds me that one year at Brighton we had four remarkable Cherry trees in pots. They were of a bright red variety and most attractive. Willing, the great advertising man, asked me to sell him these trees, and I did. The morning after the show, I saw them being paraded round the streets in an open van, with "Willing," in large letters, all over them. I suppose they were taken up to London, for the last I saw of them was on the station platform, where they were boldly displayed with the magic word upon them.

At one of the Brighton shows, Sir Jeremiah Colman was chairman of the public luncheon, and he invited the judges to say what they thought of the show. The late James Douglas replied for the judges, and after complimenting everyone on the arrangements, said that while they had firms to go to the trouble and expense of bringing down a display like Rivers' they would always make a success of it.

At York Show we won the President's Prize offered for the best group in the show, two years in succession.

I shall never forget our first exhibit at Shrewsbury. This is always a notable exhibition, attended by immense crowds. Our group consisted of sixty trees in full bearing. Nothing of the kind had been seen there before, and it was the talk of the town. Indeed, some time afterwards, a man came to the nursery—he had taken a place in Hertfordshire—and told me the Show Committee could talk of nothing else for a long time.

The outside public cannot realise how difficult it is to get trees in full bearing to these distant places without the trees being damaged, or the fruits falling. Every fruit is wrapped separately in paper and tied to the tree, and then the branches are carefully brought together and secured firmly. One year, at the Crystal Palace, I had just finished unpacking a tree, when a man came up to me and said, "I've been watching you all the time, and it's made me feel real bad. I would'nt undertake that job for £10!" He took me off to the public bar, and we had a glass of wine and a sponge cake. He was one of the leaders in August Manns' band, and used to come to the show every year.

Even when all the fruit trees are packed up, troubles are not at an end, for anything may happen in transit. We lost the first prize at Brighton one year because our exhibit was delayed on the railway. At our end we had been assured the trees would arrive the night before the show, but they were not there, and when I saw the stationmaster he told me that they could not possibly have come through in the time, and would certainly not be there before eleven the next day. We had men and vans waiting at the station all the morning, but it was only too true, and when the judges came round our stand was empty. We only just managed to get things arranged in time for the public opening.

One year our exhibit at the Temple was nearly wrecked by a most unusual happening. We sent three vans by road, but only two arrived. The drivers said the other man had been stopped by the police because his horse was lame, and he had been locked up, together with the horse and van. I hurried off to Stratford, where this had happened, bailed the man out, and hired another horse to take the van to the show. Next morning the magistrate fined the man forty shillings, and as he had no money on him, they took him off to Holloway, although we sent a telegram saying the money was on the way. The man I sent to pay the fine had to follow on to Holloway and pay another six shillings, and the two of them had to walk back to Sawbridgeworth, a matter of twenty miles, leading the horse.

One of the most popular Pears was raised by Messrs. Rivers. At the International Pear Conference held at Chiswick in 1885, there were ten thousand dishes of Pears. This Pear was the only one given a First Class Certificate, and afterwards the Committee specially desired that it should be named Conference. We had at the same show a dish of King of Tompkins' County Apple, which was then a novelty, and attracted much attention.

In the intervals between showing, I was by no means resting at Sawbridgeworth. One of the things which we were constantly asked to do and which we always did willingly and freely, was to visit country estates and advise on the varieties of fruit suitable for the particular establishment. On this errand I travelled a good deal, saw some beautiful estates and met many notable people.

When he succeeded to the estate, Lord Lambourne, then Col. Lockwood, came to the nursery and drove me all the way to Bishop's Hall, where I spent the whole day with him. Among other visitors to the nursery I interviewed from time to time, were Mr. Rudyard Kipling, Mr. George Borwick, of baking powder fame, and Mr. Charles Matthews, the actor.

All this, though enjoyable work, meant that my oversight of the nursery was more strenuous and often I had to work early and late to clear up arrears. Happily for me, I was always blessed with good health, and during the whole of my active life, I never lost a single day from illness or any other cause. Even when I changed over from Rivers' to Veitch's and back again, I left one place one day and started at the other the next. More than one tempting offer of capital to start on my own account was made me, but I declined them. I was happy in my work and although I might perhaps have done better from a financial point of view, had I taken advantages of these opportunities, I am not sure that, on the whose, my life would have been any happier or fuller. Money is not all, though so many seem to sell everything, including their souls, for it. *W. Camp.*

TRIAL OF ADCO MANURE.

Prompted by frequent applications from gardeners and allotment holders for advice regarding effective substitutes for farmyard manure, early last year the West Sussex County Council decided to make a plot trial of the Adco process at their demonstration ground, Kingsham Farm Garden, Chichester. Supplies of Standard Adco and Adco Accelerator were obtained, the former being used for treating Wheat straw, and the latter a collection of garden rubbish, comprising weeds, grass, leaves, Cabbage-stalks and general vegetable refuse. After a few months fermentation, both the straw and garden refuse had decomposed thoroughly and were deemed fit for use.

It was arranged to test the Adco manures on a crop of Potatos against similar plots dressed with farmyard manure. For this purpose four plots, each of four rods, were chosen, and the soil (medium loam) dug one spit deep. The manuring was carried out as follows :—

Plot (*a*) Adco straw manure, seven barrow-loads (approximately twenty loads per acre); Plot (*b*): farmyard manure, seven barrow-loads (approximately twenty loads per acre); Plot (*c*): Adco treated garden refuse, seven barrow-loads (approximately twenty loads per acre); and Plot (*d*): farmyard manure; not completed owing to shortage of labour.

Artificial Fertilisers.

Superphosphate: 12 lbs. per plot (=4 cwt. per acre). Sulphate of ammonia: 3 lbs. per plot (=1 cwt. per acre). Sulphate of potash: 3 lbs. per plot (=1 cwt. per acre).

Organic and artificial manures were both applied at the time of planting.

The seed sets were selected from once-grown Scotch seed, the following varieties being planted at the rate of approximately 42 lbs. per plot (=15 cwt. per acre). (1) Bishop; (2) Irish Chieftain; (3) Up-to-Date. One row of each variety, containing the same number of tubers in each case, was planted on each plot on May 15.

A space of two feet six inches was allowed between the rows, and fifteen inches between the tubers. A distance of seven feet separated the outside row of one plot from that of the next. This space was occupied by a row of three-year-old Apple and Pear trees at twelve feet apart.

Throughout the summer the appearance of the haulm was uniformly healthy and satisfactory. An interesting feature of the trial was the marked drought-resisting property of the organic manures, observable on all plots during the dry period experienced in June and July.

The Potatos were lifted on October 9, when the following results, which speak for themselves, were obtained :—

Plot (*a*), Adco Straw Manure.

	Ware. lbs.	Seed and Chats. lbs.	Total. lbs.
Up-to-Date	178	49	227
Irish Chieftain	135	10	145
Bishop	97	35	132
Total	410	94	504 lbs.

=9 tons per acre.

Plot (*b*), Farmyard Manure.

Up-to-Date	139	32	171
Irish Chieftain	84	33	117
Bishop	111	9	120
Totals	334	74	408 lbs.

=7 tons 5 cwt. per acre.

Plot (*c*), Garden Refuse.

Up-to-Date	114	38	153
Irish Chieftain	110	36	146
Bishop	98	38	136
Totals	323	112	435 lbs.

=7 tons 15 cwt. per acre.

The average yield of the Potato crop for England and Wales for 1925 was 6·6 tons per acre.

This trial was carried out under the able direction of Mr. F. W. Costin, Horticultural Superintendent of the West Sussex County Council, and every facility for ensuring its success was given by the Director of Agriculture, Mr. W. Lawson.

MARKET FRUIT GARDEN.

With a rainfall of only 0·36 inch, the past month was the driest March experienced at my place since I began to keep a record in 1914. But the dry weather did nothing but good, so far as fruit trees and bushes are concerned. At the end of the month there was still plenty of moisture in the soil, although the surface was baked hard and dry where it had not been moved recently. The only disadvantage was that hoeing amongst bush fruits was rendered slow and laborious owing to the hard surface, in spite of the fact that the land had been forked over during the winter. However, horse cultivation was carried so close up to the rows of bushes that the latter have not suffered so far, and the narrow strips that remain to be hoed by hand will be finished quickly, so soon as a little rain has softened the ground. Horse cultivation in all the plantations was begun with greater ease than usual, and they are now in good order.

The cold winds of March were beneficial in keeping back the buds of fruit trees. In spite of this, it is a very early spring, though not quite so early with me as it is a little further north. On a recent railway journey I noticed that Pears were in full bloom around London and in Surrey, whilst the first of my Pear blossoms did not open until the last day of the month. Black Diamond, the earliest of my Plums to bloom, opened a few blossoms on March 11, and was in full bloom by the 21st. The only other varieties of Plums in full bloom during the month were Monarch and Czar; but all my Plums were no doubt retarded about a week owing to the use of a tar distillate wash during the winter. Several frosts occurred towards the end of the month, notably one of 3° at four feet above the ground, on the 30th; but conditions were very dry, and I do not think that any bloom was damaged.

Fruit Blossom.

Plum blossom is exceedingly plentiful, every variety that I have being full. Pears also seem to be loaded with blossom everywhere, the display in this case being really too generous to be good. Apples, with me, are patchy. There will be very little bloom on many of the trees which carried the heaviest crops last year, but those which did not do so well last year are now full of promise. The problem of alternate year bearing still awaits solution. There will, however, be quite as much Apple blossom as I expected to see after my heavy crop of last season. Gooseberries and Red Currants are blooming well, but it is too early to write about Black Currants. All fruit bloom is dangerously early; and the weather of the next few weeks will be watched with anxiety.

Spraying for Apple Scab.

In recent notes I complained that there was very little experimental work being done with respect to Apple scab. The matter has evidently been receiving more attention than I thought. Following the information from Norfolk, which I mentioned last month, there has been published in the *Journal* of the Ministry of Agriculture, an account of some more experiments carried out in the eastern counties by Mr. F. R. Petherbridge and Mr. Dillon Weston, of the Cambridge School of Agriculture, and Mr. W. G. Kent, Horticultural Superintendent of the Isle of Ely. These experiments provided further evidence of the value of spraying shortly before blooming, when the blossom buds begin to show the pink colour. Spraying at this stage with normal Bordeaux mixture (8-8-100), excess-lime Bordeaux mixture (7½-25-100), or lime-sulphur, greatly reduced the percentage of scabby fruit; but where a second spraying was given just after the fall of the bloom the control was even better. The lime-sulphur was used at one in thirty before blooming, and at one in sixty after blooming. All the fungicides caused slight scorching of the leaves, but not of any importance. The variety sprayed was Worcester Pearmain in most cases. An important point noticed was that trees sprayed before blooming withstood the second spraying without injury; those that were sprayed after blooming only were in some cases badly scorched.

I am informed by one of the experimenters that the method of making Bordeaux mixture quoted in my last notes is not the best. The lime, after slaking and thinning down, should be added to the bulk of the water, leaving enough room for the required amount of copper sulphate solution, which should be added last in fairly concentrated form. Pickering found that this method gave a flocculent precipitate which remains suspended for a long time. The amount of lime required for a forty or fifty gallon tank may easily be slaked and thinned down in a pail; and the copper sulphate may conveniently be prepared as a stock solution by dissolving it at the rate of one pound to the gallon of water, suspending it in a bag in the water over night. I find it even more convenient to dissolve the copper sulphate for each tank or barrel in a wooden bucket, using one of the quickly-soluble forms of the chemical sold by agricultural chemists for the spraying of Charlock and Potatos. The lime must be quite fresh and in lumps, Buxton lime being the best.

Stored Apples.

I am now using the last of my Bramley's Seedling Apples, which have kept very well. Some that were wrapped in oiled tissue paper fail to show any advantage from this treatment. Wrapping apparently tends to prevent "scald," which does not trouble me, but it does not seem to be a success in any other respect.

To judge from the market reports, the storage of Apples must have proved a sorry business for most growers during the past winter, for the majority of those who stored their fruits by the ordinary methods have been obliged to sell them at a very small advance on the price ruling last autumn when the fruits were gathered. The few who have adapted cold storage, however, have, no doubt, found it very profitable. Good samples of Bramley's Seedling out of cold storage are now making about 16s. per bushel, which which is quite double what they would have realised if sold in the autumn. *Market Grower.*

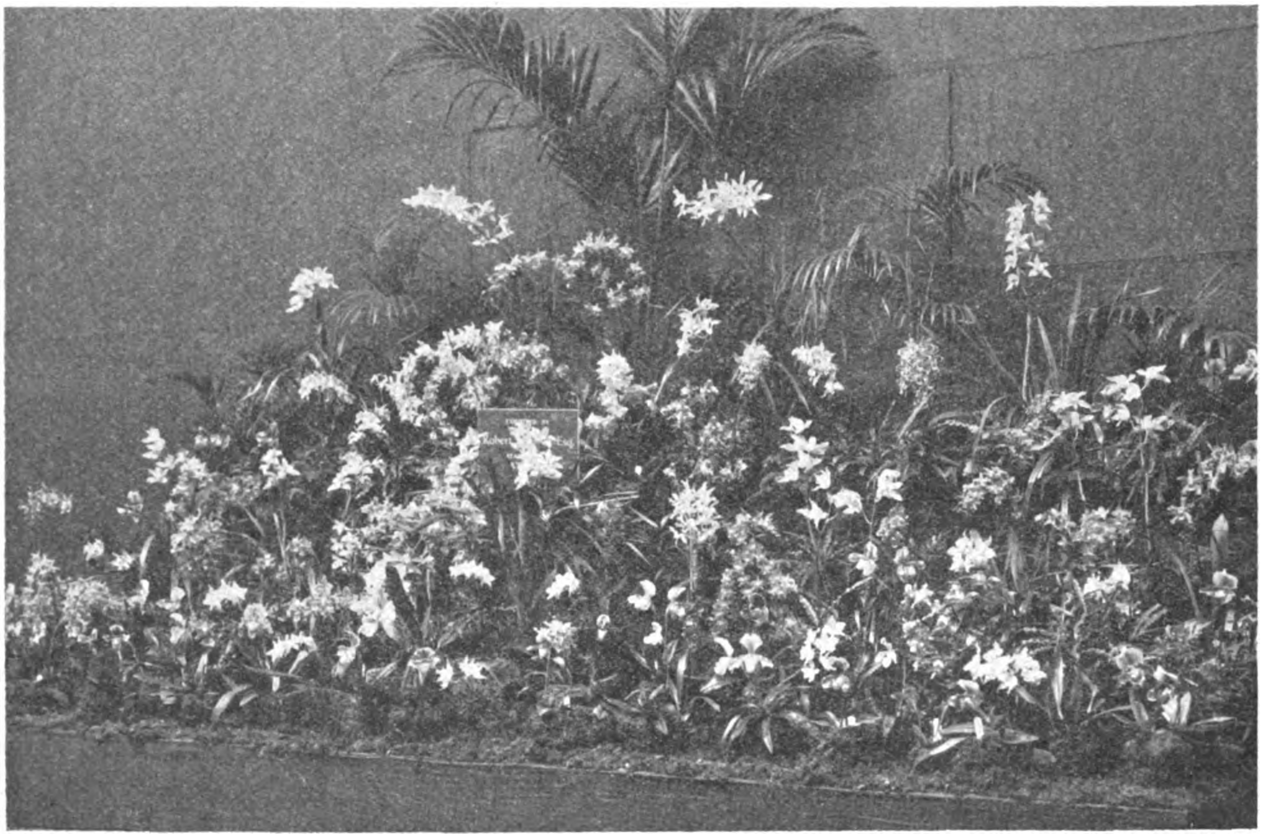

FIG. 150.—MR. ROBERT PATERSON'S EXHIBIT OF ORCHIDS AT GLASGOW SPRING SHOW

(see p. 294.)

HOME CORRESPONDENCE.

Frost and Insects.—In reply to H. J. Phillips (p. 339), it is true that birds are just as much nature's children as insects, but it is not true that they are as well equipped as insects to withstand the rigours of a severe spell of wintry weather, such as we had, for instance, in 1916-17. On that occasion the mortality amongst birds (mainly, of course, the insectivorous species) was appalling, and it is well-known that for several years following insect pests were excessively numerous in consequence, until the birds (some species of which, by the way, such as long-tailed tits and goldcrests, were virtually exterminated) recovered their normal numbers. If Mr. Phillips were right in his statement that "hard frosts mean death to millions in the insect world," will he suggest why they did not mean it on that occasion? I will supply an answer for him. Insects are much older, geologically speaking, than birds, and therefore, no doubt, have been able to adjust their economy to vagaries of climate better than birds. Insects habitually hibernate in the safest stage, and no amount of frost, however hard or continuous, will affect them, provided they are not artificially interfered with, *i.e.*, by the operations of man. Insects mostly hibernate as eggs or pupae, both of which have been frozen into blocks of ice and kept so for days in that condition; yet the eggs have duly hatched out and the pupae found to be alive after being thawed. Birds have no hibernating condition and are therefore dependent on a continuous supply of food and water; if these are withheld for a long period death ensues from starvation and thirst. Birds overcome the difficulties partly by migration to more suitable climates, but even in nature accidents will happen, and an unexpected long spell of frost or snow, which locks up the insects safely, deprives the insectivorous birds of their food and drink, with the inevitable result, unless man comes to their assistance, which he, as a rule, does not efficiently. Such long spells of frost and snow are exceptional in this country, and when they do occur it is the birds that suffer, not the insects. There may be some basis of truth in the belief based on the experience "of thousands of ordinary working gardeners"; if there is, what is it? I do not agree that "some insects are not fit to live." There are no pests in nature. It is only man's shortsightedness that has encouraged some organisms to become so. *C. Nicholson.*

A Caulescent Primrose.—The interesting note on page 244 of the exhibits of specimens of phyllody in the Primrose, with a concluding remark on the caulescent Primrose sent by Mr. Walter Barrett from Cornwall, reminds me that about twenty years ago, when in Cornwall, I found in Pencarrow Lane, which is roughly midway between Bodmin and Wadebridge, a good specimen of the umbellate Primrose. This plant had several stems and each flower had only four petals—they were "pin-eyed." As it was impossible to be sure of finding the same plant again a year later—the hedge was a sheet of Primroses—I carefully dug it up and transferred it to my own garden. To my disappointment the next spring the plant flowered in the normal manner, and most of the flowers had the usual five petals, with, as is often the case, a few having six petals. Unfortunately, I did not save any seeds. For several years, round about that time, I was particularly interested in the variation of the Primroses growing wild in the hedges and woods. During that period I must have scanned literally millions of plants over a wide area and did not find one instance of phyllody or of any variation of foliage worth recording. With the flowers, however, I was much more fortunate, for, during the several years, I found perfect flowers which displayed considerable variation in the number of petals they bore. Except that, search as closely as I might, I never discovered a flower with eleven petals, I had a whole sequence from three to twelve, inclusive. The normal number of petals is, of course, five, though six-petalled flowers are quite common and examples with four petals I found frequently. Every now and then I came across, in addition to the umbellate plant, specimens bearing four-petalled flowers only; otherwise these were of normal type. *A. C. Bartlett.*

SOCIETIES.

GLASGOW SPRING SHOW.

The initial effort made by Messrs. Austin and McAslan to establish a spring show of flowering bulbs in Glasgow was in every respect an unqualified success, and gave encouragement to the view that it will form the nucleus of a permanent institution. Accommodation was provided in the McLellan Galleries, and during the two days (March 31 and April 1) the exhibition was visited by over 5,000 people. The schedule, which contained fifty-eight classes, attracted large entries and competition was keenest in the Hyacinth and large Trumpet Daffodil sections.

Among the successful competitors, Mr. Hector Fraser, Paisley, carried off the principal honours. He was first with six Hyacinths, three multiflora Hyacinths and one Narcissus Van Waveren's Giant, one double Narcissus, two multiflora Hyacinths, three Hyacinths in glasses, a bowl of "miniature" Hyacinths, a bowl of single Tulips and double Tulips grown in "fibre," and pots of single and double Tulips, while the six bowls of bulbs which were first in their class were also awarded the special prize for the best exhibit by an amateur. This group was the outstanding feature of the competitive classes, and consisted of a bowl of L'Innocence Hyacinths containing seventeen spikes, a perfect bowl of Vermilion Brilliant Tulips with twenty-one blooms, Narcissus Van Waveren's Giant, Tulip Double Murillo, Narcissus Elvira and a wonderful bowl of the miniature Hyacinth Lyons Rose with no fewer than twenty-five spikes of flowers.

Other prominent first prize winners were Messrs. Claud Jenkins, Cambuslang; John Russell, Newton Mearns; John Gray, Uddingston, William Watson, Robert Brown, John Cochrane, Henry Smith, D. E. Drummond and Charles Roxburgh, Kilmarnock; M. Armour, Mt. Florida; Bessie Cooper, Dennistoun; W. Cameron, Mt. Florida, and R. W. MacFarlane, Hayhill Lodge, Thornton Hall, who staged two specimens of Azalea indica which were adjudged to be the best exhibit by a gardener.

The non-competitive exhibits were especially interesting on account of their variety, while the brilliance of the colour was notable. On no previous occasion has a private collection of Orchids attracted so much attention as the representative group (see Fig. 150) shown by Mr. Robert Paterson, Stamperland, Cathcart, and consisting of Cymbidiums, Cypripediums, Odontoglossums and Cattleyas, the total varieties numbering between ninety to one hundred, and including several seedlings, some in flower for the first time. The most outstanding plants were Odontoglossum Theo, Odontioda Dana, Cymbidium Lowii grandiflorum, C. Alexanderi, C. Golden Wren, C. Sunset and a seedling. The arrangement was carried out in good taste by Mr. A. Merry, the gardener. The collection was considered to be of as high a standard as that which won for Mr. Paterson the Gold Medal of the R.H.S., in January.

On no previous occasion have Messrs. Austin and McAslan provided a finer group of spring-flowering plants than the one which occupied a floor space of thirty-five feet by seventeen feet (Fig. 151) in the centre of the hall. Over four hundred subjects in full bloom were used in the scheme of decoration. The groundwork was composed of masses of Azalea, including blotched, scarlet and orange varieties, Rhododendrons, Hydrangeas, Polyantha Roses, with a broad marginal border of Tulips and Hyacinths, while the introduction of dot plants in standard and tree form of Cerasus Hizakura and C. Veitchii, Laburnum Vossii, Cytissus Beanii and C. praecox, accentuated the beauty of the harmonious colour groupings.

Extending across the hall was a pretty piece of rockwork representing a long, natural outcrop made with Westmoreland stone. The background was filled with brilliant drifts of Japanese Azaleas, of which the rich salmon-coloured variety Hinodigiri was prominent. The groundwork was artistically clothed with Saxifrages Pompadour, Fairy and Beauty of Letchworth; Iberis Little Gem, Phlox verna, Primulas Wanda, The Colonel and Roberton Hall; Ranunculus montana, the very dwarf Myosotis caespitosa Rehsteineri (Forget-me-Not); Gaultheria procumbens with its scarlet berries, and other choice plants. A collection of twenty-seven pots of Muscari occupied one of the corners and in the outer hall the firm staged a grand collection of thirty-eight varieties of Daffodils.

Lady Muir, Deanston House, Doune (gr. W. McCarrel), exhibited well-grown and charmingly coloured specimens of Primula obconica and P. malacoides, in the form of two circular beds, and Mr. Robert M. Robertson received a special award and appreciation for a collection of Hyacinths and Daffodils.

A large and interesting exhibit of Daffodils came from the gardens of Sir John Reid, Ardencraig, Rothesay (gr. Mr. Davidson). The forty varieties were all grown out-of-doors, and while the flowers generally were conspicuous for the large size and fine colour, the varieties deserving of special mention were Ellen Terry Sir Watkin, Victoria, Emperor, Empress, King Alfred, Lucifer, Albatross, Van Waveren's Giant, princeps, maximus, Seagull and Incomparable Beauty.

FALMOUTH SPRING FLOWER SHOW.

The Falmouth Spring Flower Show was held on Wednesday and Thursday, April 7 and 8, in Gyllyngdune Gardens, Falmouth. Mr. Alan Cobham, who recently flew from Cairo to the Cape and back, presided at the opening ceremony. The President, Lady Rendlesham, entertained the Committee and other officials to dinner in the evening.

The Princess Pavilion and the beautiful gardens, where the show was held, were a blaze of colour. In extent and importance the exhibition exceeded all previous efforts, and the local Chamber of Commerce, of which Mr. Herbert V. Bennetts is chairman, and Mr. H. E. Beaden, hon. secretary, did its best to assure the success of the show.

The Falmouth Corporation won the first prize for a decorative group, in which Mr. F. J. Harding, Falmouth, was second. Mr. C. Phillips, Budock, was placed first for Tulips, Mrs. C. Hext, Mawnan, had the best flowers of outdoor hard-wooded shrubs or creepers; second, Mr. R. Barclay Fox, and Mrs. R. N Rogers, Mawnan, was first in a similar but smaller class. Capt. W. H. Dowman, Flushing, showed the best Polyanthuses of one colour, and also the best three varieties in pots or baskets; this gentleman also led in the class for Primroses. Other successes won by Capt. Dowman were first prizes for Cinerarias; for six vases of out-door, hard-wooded flowering shrubs or creepers; for unforced spring flowers; for Anemone fulgens; and he also won the Challenge Cup offered for three varieties of any type of Daffodil. Mr. R. Barclay Fox showed the best group of Rhododendron blooms, the best six trusses cut from out-of-doors, the best six trusses from indoors, the best hybrid Rhododendrons, and the best Camellias. The Rhododendron exhibit, for which Mr. Fox was awarded the Royal Horticultural Society's Banksian Medal, offered for the best exhibit in the show, contained many unique species and varieties.

The cut shrubs shown by Mrs. Hext contained well-grown specimens of Prostanthera rotundifolia, Erica melanthera, Rhaphithamnus cyanocarpus, Clianthus puniceus and Pittosporum eugenioides. In the same section Mr. Barclay Fox also displayed a very fine collection of more than thirty flowering shrubs.

Of the trade exhibits, that by Messrs. W. Ruse received a Gold Medal; it contained a fine collection of hybrid Rhododendrons, Azalea species, Genistas, Cytisus, Boronias, Leptospermums, etc. Other firms receiving Gold Medals for similar exhibits were Messrs. R. Veitch and Son, of Exeter and the Devon Rosery, the latter firm including many Roses in their fine display. Messrs. Treseder, Truro, showed rare and little-known flowering shrubs. In the Narcissus section two very fine exhibits were staged by Messrs. Barr and Sons and Mr. C. J. Martin, Truro, the latter a young hybridist who has already made a reputation through some of his new varieties, the best of these being Silver Penny, Silver Chimes and Mrs. J. C. Martin. Other trade firms displaying Daffodils were Mr. J. W. Barr; The Welsh Bulbfields, St. Asaph; and Messrs. Cartwright and Goodwin of Kidderminster.

An exhibit of alpines was shown by Messrs. Maxwell and Beale, Broadstone, Dorset. An honorary exhibit of considerable merit was staged by Mrs. Fox of Rosehill, Falmouth.

LONDON DAFFODIL SHOW.

April 13 and 14.—The Daffodil Show held at Westminster on these dates was a great success, as the number and quality of the exhibits greatly exceeded those of recent years. As compared with last year there were over one hundred additional entries in the competitive classes, while the non-competitive displays were remarkably good, no fewer than four being recommended for a gold medal award. New varieties were plentiful and good, showing, in form and colour, the great advances that are being made by the leading raisers.

The Peter Barr Memorial Cup was awarded to Mr. William Poupart.

Narcissus and Tulip Committee.

Present: Mr. E. A. Bowles (in the chair), Mr. G. W. Leak, Mr. Chas. H. Curtis, Mr. H. G. Hawker, Mr. W. F. Copeland, Mr. H. Backhouse, Mr. A. R. Goodwin, Mr. Reginald Cory, Mr. Rollo Meyer, Mr. F. H. Chapman, Mr. Alfred W. White, Mr. Herbert Smith, Miss E. Willmott, Mr. C. C. Titchmarsh, Mr. F. Barchard, Mr. C. Needham, Mr. J. W. Jones, Mr. George Churcher, Mr. Peter R. Barr and Mr. W. B. Cranfield.

FIRST-CLASS CERTIFICATE.

Narcissus Red Rim.—A fine Poeticus variety of large size with broad, white perianth and a large, yellow, red-rimmed cup. Shown by Mr. F. A. Secrett, Twickenham.

AWARDS OF MERIT.

Narcissus Papyrus.—In this Poeticus variety the perianth segments are of unusually fine substance, suggesting that the variety will become very suitable for marketing. The cup is soft yellow, with orange-red rim. Shown by Mr. F. A. Secrett.

Narcissus Seraglio.—In this handsome Barrii variety the broad, rounded perianth segments are deep cream-coloured with orange staining at the base. The cup is wide, plaited, and of rich orange colour. Shown by Mr. J. L. Richardson, Waterford.

White Sentinel—A large Incomparabilis variety with pale cream-white perianth segments of fine breadth and form, and a wide, slightly frilled trumpet of primrose-yellow hue. Shown by Mr. J. L. Richardson.

Narcissus Mulberry.—A Barrii variety with white perianth segments stained with pale orange at the base. The flat, plaited cup is intense orange. Shown by Mr. P. D. Williams.

Narcissus Traboe.—A giant white Barrii with wonderfully rounded perianth segments and a deep yellow, orange-rimmed cup. A beautiful flower and of great refinement. Shown by Mr. P. D. Williams.

Narcissus Folly.—A large Incomparabilis variety with reflexing, white perianth segments, the inner of which infold somewhat at the margins; the broad, short trumpet is of chrome-orange colour. A fine garden variety but not sufficiently formal to be a good show bloom. Shown by Mr. P. D. Williams, Lanarth, St. Keverne.

Narcissus Carmel.—A stately Ajax variety with paper-white, flat perianth segments and a frilled, deep primrose-yellow trumpet. Shown by Mr. Guy L. Wilson, Broughshane.

Narcissus Samaria.—A chaste and delicate Leedsii variety with white, rounded perianth segments and small, frilled white cup which has a faint pale yellow rim and greenish centre. Shown by Messrs. **HERBERT CHAPMAN.**

Narcissus Betha.—In this handsome sulphur-yellow Poetaz variety the blooms are of large size, especially when, as in some instances, the stem carries only one flower. The cup is deep yellow with orange tinting. Shown by Mr. W. **WELCHMAN**, Wisbech.

Narcissus Valetta.—The name of this variety must be altered as a similar name was registered long ago. The new comer is a white Ajax, very beautiful and clean cut, the frilled rim being finely recurved. Shown by Mr. **GUY L. WILSON.**

COMPETITIVE CLASSES.

The first of the open classes was for twelve varieties, three blooms of each, from any of the divisions. The first prize was awarded to P. D. **WILLIAMS**, Esq., Lanarth, St. Keverne, Cornwall, from whose exhibit a number of vases had been removed—probably for the consideration of the committee. The remaining flowers were unnamed. Mr. J. L. **RICHARDSON** was second, and he included several good seedlings, Beersheba, white Trumpet, and Red Sea, Barrii, though there were also some empty spaces.

The best twelve Trumpet Daffodils were shown by Mr. **GUY L. WILSON**, who had very good vases of Beersheba and Sorley Boy, two richly coloured yellow varieties. The **DONARD NURSERY** Co. were second and they included Selina Malone, a very large Bicolor; White Conqueror and Monarch, a yellow variety of fine quality. The **DONARD NURSERY** Co. had the best twelve Incomparabilis varieties. Market Glory, orange corona; Festive, pretty frilled corona and Leontes, were very good. Mr. J. L. **RICHARDSON** showed mostly seedlings in his second prize exhibit. He was the only exhibitor in the Barrii class and was awarded the first prize for a good collection in which Dosoris, Seraglio and Joan of Arc were splendid.

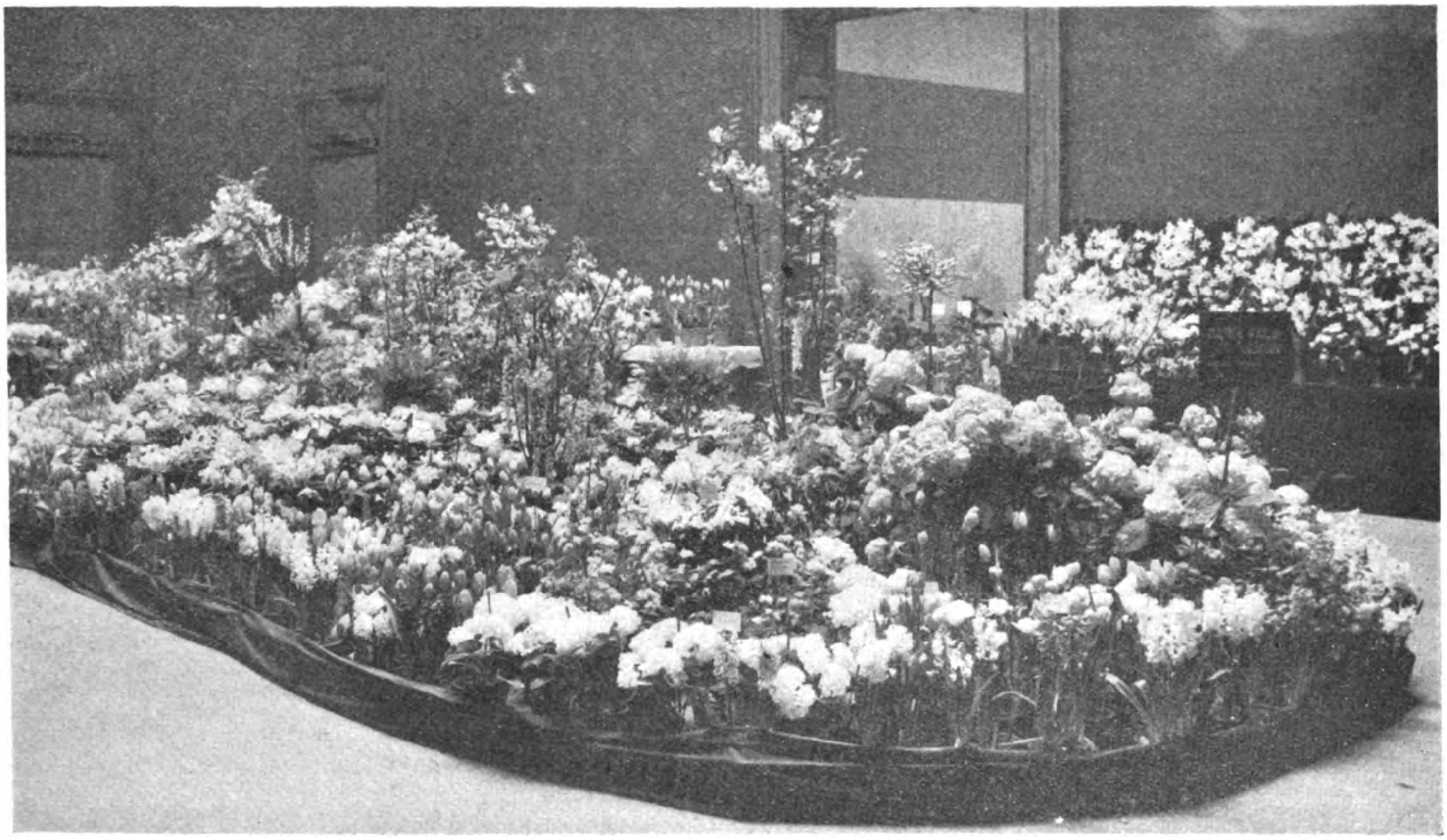

FIG. 151.—MESSRS. AUSTIN AND McASLAN'S EXHIBIT AT THE GLASGOW SPRING SHOW.
(see p. 294.)

The giant Leedsii blooms were very good indeed. Mr. G. L. **WILSON** won the first prize showing Mitylene, Winscombe, pale primrose cup; Honesty, long, pale primrose cup, and White Mill. The **DONARD NURSERY** Co., who were second, had good examples of Potent, deep lemon-coloured cup with frilled margin, and Blizzard, widely expanded cup and nearly pure white. There were no exhibits of small Leedsii varieties.

In the class for twelve Poeticus varieties the judges placed Messrs. H. **CHAPMAN** and Mr. J. L. **RICHARDSON** equal firsts. The former showed Raeburn and Kestrel with some good seedlings, while the latter had fine vases of Socrates, Dactyl, Thetis, and Iliad.

The following classes required only six varieties in each. The best yellow Trumpets were shown by Mr. G. L. **WILSON**, who included Bulwark, His Excellency, and Golden Flag. The **DONARD NURSERY** Co. were second with Slieve Donard, Gorgeous, and Bulwark. Mr. G. L. **WILSON** was also first with White Trumpet varieties, showing Beersheba, Gaza, and White Frost, and was equally successful with Bicolor Trumpets; he included Rosemary, pink-tinted, frilled trumpet; Rosemorran Giant, a very large bloom with deep lemon tube, and some very good seedlings. Mr. **RICHARDSON** was second in both classes.

Competition was keen in the class for Incomparabilis varieties where Mr. **WILSON**, showing mostly seedlings, was again first and the **DONARD NURSERY** Co. second. They had five vases of Sonex, Leontes and Market Glory. The best bicolor Incomparabilis varieties were staged by the **DONARD NURSERY** Co. who had Warspite and Festive of high quality. The Rev. T. **BUNCOMBE**, Black Torrington, North Devon, was second, and he had Lady Moore and Princess Budura in splendid condition.

There was no exhibit of Barrii varieties with yellow perianths, but Mr. **RICHARDSON**, showing Ruby, Firetail and Crimson Braid of beautiful form, was first with Barrii varieties with white perianths, and the Rev. T. **BUNCOMBE** was second.

In the Giant Leedsii class the judges again found exhibits of equal merit and first prizes were awarded to the **DONARD NURSERY** Co. and Mr. J. L. **RICHARDSON**. The former showed Snowdrift and Blizzard, and the latter had lovely vases of several seedlings. No first prize was awarded for small Leedsii blooms.

Showing all seedlings Mr. W. F. M. **COPELAND** was first with Triandrus varieties, and the **DONARD NURSERY** Co. were second. They included vases of Pearl of Dew and Christine. The classes for Cyclamineus, Jonquilla and Tazetta varieties were not represented, but there were good exhibits of Poeticus varieties. Mr. **RICHARDSON** was first and he included Caedmon and Ringdove, while Capt. H. G. **HAWKER**, Ermington, Devon, was second, and he had Dulcimer and Ringdove of fine quality.

The section for New Varieties raised by the exhibitor was of great interest and contained a number of valuable varieties. The best twelve were shown by P. D. **WILLIAMS**, Esq., who, in addition to seedlings of great merit, showed Folly and Traboe (see Awards of Merit) and Menadue, a Poeticus variety with a small, scarlet-margined corona. Mr. **WILSON**, who was second, also had very good seedlings.

E. T. **ENGLAND**, Esq., Baring Place, Exeter, had the best six varieties and the Rev. T. **BUNCOMBE** was equally successful with three varieties; both exhibitors staged seedlings under numbers. There were several exhibits of twelve varieties not in commerce, but the first prize did not appear to be awarded. Mr. **RICHARDSON** was second and his best vases were of seedlings. The Rev. H. **ROLLO MEYER**, Watton Rectory, Hertford, showing seedlings, had the best six varieties, not in commerce. **THE DONARD NURSERY** Co. were awarded the second prize. In his first prize exhibit of three varieties, not in commerce, Mr. E. T. **ENGLAND** had a good vase of Monitor, a bicolor Trumpet, and two excellent seedlings. The first prize was not awarded in the Novices' Class.

There were sixteen classes for one bloom or stem of a variety from each of the various divisions. These were for open competition, and the first prizes were won by the following:—Mrs. Alfred West, Kilcroney, Bray, Co. Wicklow, with Beersheba (White Trumpet); Mr. W. B. Cranfield, with Brimstone (Yellow Trumpet), Seashell (small Leedsii), James Hogg (Poeticus), and White Coral (cup-shaped Triandrus); Mr. J. L. Richardson, with an unnamed seedling (Bicolor Trumpet), with Buttercup (Jonquilla), Mitylene (Giant Leedsii), and was equal first with the Donard Nursery Co. with a seedling (Incomparabilis, red colouring); The Donard Nursery Co. showed Whitewell, and were first with Lady Lilford (Barrii, with yellow perianth); Mr. G. T. C. Pearce, Vanderbilt Hotel, London, S.W., with a seedling (Trumpet-shaped triandrus); Mr. W. F. M. Copeland, with Fly Cap (cyclamineus), Mr. W. Welchman, Upwell, Wisbech, with Betha (Tazetta), and Mr. F. H. Chapman, with a seedling Double Daffodil. No first prize was awarded for Yellow Incomparabilis.

Amateurs' Classes.

The class for collections of twenty-four varieties, three stems of each, representing the different divisions brought some interesting exhibits and the general quality was good. W. B. Cranfield, Esq., East Lodge, Enfield Chase, won the first prize with an admirable collection which included Cleopatra and Rounde, Yellow Trumpets; Epaulier, large Incomparabilis, with a long, orange-coloured cup; Puck, Leedsii; and Antartic, Poeticus. H. R. Darlington, Esq., Potters Bar, was second.

Only four first prizes were awarded in the classes for six varieties, three blooms of each, and these were won by W. B. Cranfield, Esq. His chief varieties were White Knight, Trumpet; Eaglestone, Potent and Alban, Leedsii; Waterfall and White Coral, triandrus; and James Hogg and Dactyl, Poeticus.

Fifteen classes were provided for novices, but they were not at all well filled. H. J. Morris, Esq., Woodfield House, Penrhyn, was the chief, and in some cases the only exhibitor. He was awarded first prizes for twelve varieties; three varieties each of Incomparabilis, Barrii and Poeticus, and was also awarded several second prizes.

The Barr Silver Daffodil Vase, which is open to all amateurs, and offered for a collection of thirty-six varieties was awarded to W. B. Cranfield, Esq. In the classes for decorations of Daffodils Miss Lock, Denmark Park, London, was first with a vase of Osprey and also with a basket of Horace, and was second with a bowl of Daffodils, for which Mr. W. F. M. Copeland was first.

The five market classes did not appeal to growers, for there were only three boxes of blooms and these were sent by Mr. J. E. Exley. He had good bunches of a seedling Ajax, four varieties of Trumpet Daffodils, and four Incomparabilis varieties.

Non-Competitive Exhibits.

Around the Hall there were many splendid collections of Narcissi set up by the various trade firms. Messrs. Barr and Sons filled a large space with a magnificent collection of most of the many types. Diana Kasner, Incomparabilis, Primrose Phoenix, Double; Gertie Miller, Incomparabilis, with a very widely expanded primrose cup; Prince of Wales, yellow Trumpet; Virgilia, lemon-cupped Giant Leedsii, Pearly Queen, Incomparabilis, and Oracle are only a few of the varieties.

In a corner space Messrs. Dobbie and Co. had a mossy mound planted with Osprey, a fine Giant Leedsii.

A collection of seedlings shown by P. D. Williams, Esq., included St. Pluvius, Poetaz; Gulliver, with a vivid orange corona, and Kynance. Collections, also largely of seedlings, were shown by Mr. W. F. M. Copeland, Messrs. Cartwright and Goodwin, Mr. J. L. Richardson, Mr. J. W. Barr, The Welsh Bulbfields Co., Mr. Guy Wilson, Messrs. R. H. Bath, Ltd. Mr. W. B. Cranfield, The Donard Nursery Co. and Messrs. J. R. Pearson and Sons, who all included many desirable varieties.

A magnificent exhibit of Daffodils as grown for market was made by Messrs. Seymour Cobley, Ltd.; they had massed vases of Gaybird, Barrii; White Lady, Leedsii; Croesus, Barrii with brilliant cup; Robespierre and a seedling Poeticus.

Obituary.

Luther Burbank.—The death is announced, at the age of seventy-seven, of Mr. Luther Burbank, the famous American grower and plant-breeder, at his home at Santa Rosa, California. Born in 1849 near Boston, he was educated at the local academy, and took his science degree in 1905. At eighteen years of age he took up farming to such good effect that at twenty-six he had already produced the Potato which bears his name. Soon after this he went to California and began plant-breeding on a large scale, producing many fruits and vegetables with hitherto uncombined qualities. His method in all cases consisted of a long series of patiently carried out experiments, in which he was aided to a considerable extent by the wonderful soil and climate of California. A life-grant was made to him some years ago by the Carnegie Institution, which enabled him greatly to increase the scope of his experiments.

Mrs. George Monro, J.P.—It is with deep regret we learn of the death of Mrs. George Monro, which occurred on Friday of the past week at her home at Finchley. She had been visiting several hospitals and suddenly collapsed close to one of them: from this stroke she recovered partially, but cerebral haemorrhage set in and she passed away. The deceased lady, widow of the late Mr. George Monro, V.M.H. had reached the age of seventy-six years, and had been for many years a generous supporter of the horticultural charities; her three sons conduct the famous business of George Monro, Ltd., Covent Garden, and to them and the other relatives we offer our deepest sympathy.

Edward Tindale.—We much regret to learn that Mr. Edward Tindale, Ravensworth Gardens, Gateshead, died on Saturday, the 3rd inst., aged 70. He entered the gardens at Ravensworth as a boy, eventually acting as head gardener there for over forty years: he served under three successive owners of Ravensworth, including the late Lord Ravensworth, and the present holder of the title. Though of a retiring disposition, he was widely known. At one time he was a prominent exhibitor, and his services were in demand for judging at northern shows. His remains were buried at Lamesley Churchyard on April 6 in the presence of a representative gathering.

ANSWERS TO CORRESPONDENTS,

Corrections.—The novelty Magnolia conspicua R. Veitch's variety, which gained the R.H.S. Award of Merit on the 7th inst., was shown by Col. Stephenson R. Clarke, C.B., Borde Hill, Cuckfield, and not by Messrs. R. Veitch and Son, as stated on p. 277. We regret also that Brasso-Cattleya Mary J. S. Hanbury was credited to Sir George Holford, instead of to Frederick J. Hanbury, Esq., Brockhurst, East Grinstead.

Black Thorn not Flowering.—*M. K.* The Black Thorn, Prunus spinosa, is usually the most reliable and consistent of the Prunuses in respect to flowering, so, as your tree bears only a few flowers, we suspect that it is growing too freely. The remedy in such case would be root-pruning, an operation best performed in the autumn, though, if a trench half-way round the tree at the proper distance, is cut now and the roots cleanly severed, no harm to the tree would accrue, and much of its exuberance would be checked. If, on the other hand, the tree is a mass of thin shoots, this state would be responsible for the lack of flowers. Some of the surplus growths may be cut out, but, as the tree is grown for its ornamental value, the thinning should not be too severe.

Names of Plants.—*L. S.* No. 1 is Colletia spinosa, frequently known as C. cruciata, while No. 2 is the terete-leaved form which occasionally occurs and was many years ago named C. spinosa. In 1877, however, it was established that the two types of growth belonged to one and the same plant and species.

The Common Almond.—*J. T.* The Prunus Amygdalus or Amygdalus communis so freely planted in town and suburban gardens, has no distinctive name. The usual method of propagating is by budding. Possibly the tree you have is a seedling, hence the pale colour of its flowers. Should you propose purchasing trees from a nursery, Messrs. L. R. Russell, Ltd., Richmond Nurseries, Surrey, specialise in the cultivation of the finer-coloured forms of this flowering Almond.

Tulips Failing.—*R. O. C.* The Tulips forwarded for examination showed no signs of fungous or insect attack. The Tulips have failed to flower properly, a flower bud of a quarter-of-an-inch or half-an-inch not developing further. The failure appears to be due to the bulbs being improperly ripened; moreover, they were very small for Clara Butt.

Vine Shoots Damaged.—*C. F.* No trace of a fungus could be found on the damaged shoots received, but the skin was distinctly brown in places, and there was a corky formation, following apparently on some mechanical injury.

Communications Received.—Lota.—A. J. J.—W. K—C. A.—R. E.—H. S.—W. J. P.—Eromssap—T. R.C—T. S.—K. M. H.—J. V. N.—Dr. P.—L. E. B.—D. D.R. Rev. H. F.

NEW HORTICULTURAL INVENTIONS.

These particulers of New Patents of interest to reader's have been selected from the official Journal of Patents, and are published by special permission of the Controller of His Majesty's Stationery office.

Latest Patent Applications.

6,888.—Davidson, D. H.—Combined hoe and rake. March 12th.

6,521.—Powell, R. I., and White, C.—Garden tools, etc. March 9th.

6,975.—Robinson, J. H.—Container for wreaths. March 13th.

6,156.—Briscoe, R. I. and Quayle, J. A.—Germination of grain, bulbs, etc.—March 5th.

6,001.—Gorton, M. W.—Horticultural glass frames. March 3rd.

Specifications Published.

247,733.—Williams, W.—Glasshouses.

247,493.—Diehl, J.—Lawn-edger.

Printed copies of the full Published Specifications may be obtained from the Patent Office, 25, Southampton Buildings, London, W.C.2., at the uniform price of 1/- each.

Abstract Published.

Sorting Seeds. *Patent No.* 246,068.

An ingenious method of sorting mixed seeds has been protected in this country by Messrs. Stahel and Varsanyi, of 44, Orszagbiro ut, Angyalfold, Budapest. The method consists in first covering the seeds with powder, and then causing them to rebound from a suitable surface, the amount adhering to the seeds depending on the nature of their surface and determining the distance of the rebound. Receptacles are arranged to catch the different seeds.

MARKETS.

COVENT GARDEN, Tuesday, April 13th, 1926.

Plants in Pots, etc.: Average Wholesale Prices.

(All 48's except where otherwise stated).

	s. d. s. d.
Adiantum cuneatum per doz. ...	12 0-15 0
—elegans ...	12 0-15 0
Aralia Sieboldii	9 0-10 0
Araucarias, per doz.	30 0-42 0
Asparagus plumosus	12 0-18 0
—Sprengeri ...	12 0-18 0
Aspidistra, green	36 0-60 0
Asplenium, per doz.	12 0-18 0
—32's	24 0-30 0
—nidus	12 0-15 0
Azaleas, '48's, each	4 0—6 0
Boronia megastigma, 48's, per doz.	30 0-36 0
Cacti, per tray —12's, 15's ...	5 0- 7 0
Cinerarias, 48's, per doz. ...	18 0-21 0
Crotons, per doz.	30 0-45 0
Cyclamens, 48's in variety, per doz.	24 0-30 0

	s. d. s. d.
Cyrtomium ...	10 0-25 0
Daffodils, 48's, per doz. ...	18 0 21 0
Genistas, 48's, per doz. ...	24 0-27 0
Hyacinths, large white, 48's, per doz.	21 0 24 0
Hydrangeas, pink, 48's, per doz....	24 0-30 0
—white, 48's, per doz.	24 0-27 0
—blue, 48's, per doz.	24 0-36 0
Marguerites, 48's per doz. ...	18 0-21 0
Nephrolepis in variety ...	12 0-18 0
—32's	24 0-36 0
Palms, Kentia	30 0-48 0
—60's	15 0-18 0
Pteris, in variety	10 0-15 0
—large, 60's ...	5 0- 6 0
—small	4 0- 5 0
—72's per tray of 15's	2 6- 3 0

Cut Flowers, etc.: Average Wholesale Prices.

	s. d. s. d.
Adiantum decorum, doz. bun.	10 0-12 0
cuneatum, per doz. bun. ...	8 0-10 0
Anemone fulgens, per doz. bun.	2 6- 3 6
Arums (Richardias) per doz.	4 0—5 0
Asparagus plumosus, per bun., long trails, 6's,	2 0- 3 0
med. sprays	1 6- 2 6
short	0 9- 1 3
—Sprengeri, bun long sprays...	1 6- 2 0
med. „ ...	1 0- 1 6
short „ ...	0 4- 1 0
Camellias, white per box, 12's	2 6- 3 0
Carnations, per doz. blooms	2 6- 3 6
Croton leaves per doz. ...	1 9- 2 6
Daffodils, Emperor, per doz. bun. ...	— —4 0
—Sir Watkin, per doz. bun.	4 0—4 6
—Victoria, per doz. bun. ...	4 0—5 0
Fern, French, per doz. bun.	10 0-12 0
Forget-me-not, per doz. bun.	9 0-15 0
French Flowers — Anemones, St. Brigid, per doz. bun. ...	3 0—4 6
—double red, per doz. bun.	6 0—7 0
—Parma Violets, per bun. ...	2 6—3 0
—Ranunculus, scarlet, per doz. bun. ...	4 0—5 0
—Star of Bethlehem, (Allium), per doz. bun.	3 0—3 6
Gardenias, 12's, 18's, per box	3 0—4 0
Gypsophila ...	4 0—6 0
Heather, white, per doz. bun.	10 0-12 0
pink, per doz. bun.	9 0-12
Iris blue, per doz. blooms ...	1 6—2 6
—mauve, per doz. bun. ...	15 0-18 0
—white, per doz. bun.	24 0-30 0
—yellow... ...	30 0-36 0
Ixias, red ...	9 0-10 0
—mixed... ...	5 0—6 0

	s. d. s. d.
Lilac, white, per doz. sprays...	6 0—7 0
Lilium longiflorum long, per doz.	3 0—4 0
—speciosum rubrum, long, per doz. blooms ...	3 6—4 0
—short, doz. blooms ...	2 6—3 6
Lily-of-the Valley, per doz. bun.	24 0-36 0
Narcissus ornatus, per doz. bun.	2 6—3 6
—Barrii, per doz. bun.	2 6—3 0
—Leedsii, per doz. bun. ...	4 0—6 0
—Poetaz, per doz. bun. ...	4 0—5 0
—Horace, per doz. bun. ...	4 0—4 6
Orchids, per doz.	
—Cattleyas ...	24 0-30 0
—Cypripediums	5 0—7 0
Roses, per doz. blooms—	
—Madame Abel Chatenay ...	3 0 4 0
—Molly Sharman Crawford	3 0—4 0
—Richmond ...	3 0—4 0
—Columbia ...	3 0—5 0
—Golden Ophelia	3 0—4 0
—Sunburst ...	3 0—4 0
—Mrs. Aaron Ward	2 0—3 0
—Madame Butterfly	4 0—5 0
Smilax, per doz. trails	6 0—7 0
Stock, double white, per doz. bun.	3 0—4 0
Sweet Peas, per doz. bun.	12 0-18 0
Tulips—	
—white	12 0-18 0
—yellow ...	12 0-18 0
—scarlet ...	12 0-18 0
—pink	12 0-18 0
—W. Copland, per doz. bun. ...	18 0-24 0
—Clara Butt ...	18 0-24 0
—Darwin—	
—Bartigan ...	18 0-24 0
—Elizabeth ...	18 0-24 0
—Farncombe Sanders ...	18 0-24 0
Violets	3 0—4 0

REMARKS.—There was a general fall in prices during last week owing to the heavy supplies from all quarters. Daffodils from home-growers begin to show signs of finishing; small consignments of these blooms are now coming from Scotland in good condition; they consist mostly of Emperor, Grandee and Sir Watkin. There are also abundant supplies of Narcissus ornatus from Lincolnshire. Carnations and Roses have been good in quality and plentiful in supply. Richardias (Arum) and Lilium longiflorum are much reduced in price owing to the increased supplies. The quantities of Lilium lancifolium rubrum are sufficient for present requirements. Tulips have been much affected by the warmer weather; the indoor blooms have been arriving in a very soft condition, and large consignments have been cleared at very low prices, especially the double varieties. All flowers from the south of France and the Channel Islands have suffered in transit. The newest subjects from the south of France are Irises cut in the bud stage. Ixias, Gypsophila, good White Stock and Star of Bethlehem realised better prices. Anemones, Ranunculus and Ixias are being sent from the Channel Islands, also large supplies of Darwin and White Swan Tulips. All Narcissi have suffered in transit owing to the warmer weather. Spanish Irises are arriving in good condition from home-growers and cut White Hydrangea is taking the place of cut Azalea, which is practically finished. There is little choice at the present time for small blooms suitable for the making of floral designs.

Fruit: Wholesale Average Prices.

	s. d s. d.
Apples, Cooking—	
—Bramley's Seedling ...	10 0-14 0
—Newton Wonder ...	8 0-10 0
Apples, American	
—Albermarles brl.	36 0-40 0
—Oregon Newtown ...	13 0-15 0
—Winesap ...	8 0-10 0
Apples, New Zealand—	
—Cox's	18 0-22 6
—Worcester Pearmain ...	12 0-14 0
—Ribston Pippin	14 0-16 0
—Jonathan ..	14 0-16 0
Apples Nova Scotia—	
—Ben Davis ...	10 0-18 0
—Nonpariel ...	14 0-25 0
—Stark ...	10 0-16 0
Apples, Tasmanian—	
—Ribston Pippin	12 0-14 0
—others	10 0-12 0
Apples, Victorian	
—Jonathan ...	12 0-14 0
—Worcester Pearmain ...	10 0-12 0
Bananas	17 6-27 6

	s. d. s. d
Grapes, Belgian—	
—Gros Colmar	3 0—4 0
Grape Fruit,	
—Jamaica ...	25 0-30 0
—Isle of Pines	25 0 30 0
—Florida ...	32 6-40 0
Lemons, Messina, per box ...	9 0-10 0
Oranges—	
—Denia	12 0-30 0
—Murcia ...	12 0-30 0
—Jaffa ...	18 0-24 0
—Palermo Bloods box ...	7 0-10 0
Forced Strawberries... ...	10 0-18 0
South African fruits—	
—Plums, Kelsey	7 0-12 0
—Josephine ...	5 0—7 0
—Beurré Bosc...	4 0—6 0
—Duchesse ...	3 6—4 0
—Comice ...	8 0-12 0
Australian grapes ...	14 0-18 0
Australian plums, tray...	6 0 10 0
South African Grapes ...	10 0-12 6
Strawberries, per lb.	6 0-12 0

Vegetables: Average Wholesale Prices.

	s. d. s. d.
Artichokes, green per doz. ...	2 0—4 0
Asparagus, English—	
—Fugsham ...	3 6—7 0
—Devon ...	5 0-10 0
—Cambridge ...	1 6—2 0
Asparagus—	
—Cavaillon ...	0 8—1 0
—Lauris ...	1 0—2 0
Beans—	
—Madeira, per basket	2 6—3 0
Boxes	3 0—4 0
—Guernsey and Worthing forced...	1 0—1 6
Beets, per cwt.	6 0—8 0
Cauliflowers, per doz.	2 0—5 0
New Carrots, per doz. bundles ...	8 0-12 0
Chicory, Belgian, per lb	0 6—0 8
Cucumbers, per doz.	4 0—7 0
—Flats	14 0-20 0
French Cabbage, crates 24's ...	5 0—6 0
Endive, per doz.	2 6—4 0
Horseradish, per bundle ...	1 3—1 6
Lettuce, round, per crate ...	3 0—5 0
—long, per doz.	4 0—5 0
—Dutch, per crate... ...	3 0—5 0
Mint, forced ...	2 0—4 0
Mushrooms, —French ...	1 6—2 6
Mushrooms,	
—cups	2 0—3 0
—Broilers ...	1 6—2 0

	s. d. s. d.
Onions—	
—Dutch	8 0—8 6
—Egytian ...	— 11 0
—Valencia ...	7 6—8 6
Parsnips, per cwt.	6 0—7 0
Peas, French crate	6 0—8 0
Potatos—	
—Dunbar ...	7 0—8 0
—King Edward, per cwt. ...	5 0—7 0
—others	3 0—5 0
New Potatos—	
—Spanish, per cwt.	14 0-18 0
—Algerian per lb.	10 0-14 0
—Canary Island	12 0-15 0
—Guernsey ...	0 4—0 7
Rhubarb, forced, per doz. bundles	0 9—1 3
—outdoor ...	4 0—5 0
Seakale—	
—natural, per ½-sieve	5 0—6 0
—punnet ...	1 6—2 0
Spinach, per bushel ...	4 0—6 0
Spring Greens, per bag ...	3 6—6 0
Tomatos, Canary Islands Best...	25 0-30 0
—English... ...	2 6—3 0
Turnips, per cwt.	5 0—7 0
—new, per doz. bunches ...	9 0-10 0
Turnip Tops, per bag ...	4 0—4 6

REMARKS.—Almost all sections report a very busy week. No doubt the fine weather has encouraged the demand and also brought along supplies of forced produce. Shipments of South African fruits continue to be heavy; they consist mostly of Pears, Grapes and a few Plums, the enquiry for which is brisk. Apples from Australia and New Zealand increase in quantity with each boat, and are meeting an improved demand. There are still some American and Canadian Apples available. Some well-stored English Bramley's Seedling and Newtown Pippin Apples are selling freely, but fruits of inferior quality are difficult to sell at prices satisfactory to the growers. Forced Beans have been cheaper owing to increased supplies but the tendency at the moment is for a rather better trade. Prices for new Potatos from Guernsey and Jersey have slumped badly, due to excessive supplies from Spain and Algeria. A sprinkling of English Asparagus is arriving, but the market is swamped with Asparagus from France, which is selling very cheaply. Cucumbers are moving freely, and supplies from all sources are heavy. Tomatos from the Lea Valley and Worthing districts are coming along very well and sell at satisfactory prices. Both French and English salads are plentiful but are not such a good business as they were. Trade in Mushrooms continues steady and prices show very little fluctuation. Green vegetables have been in good demand, but at the time of writing their prices are easier.

GLASGOW.

Salesmen had an unenviable experience last week. Supplies of cut flowers were exceptionally large, and when the market opened after the holiday on Tuesday buyers were confronted with innumerable consignments of Tulips which, in consequence of the exceptional heat experienced over the week-end, were either soft and blown or spotted. Any price was accepted, and up till Saturday considerable quantities were unsaleable. Murillo was offered at 2/- per box and blooms of Clara Butt sold at 1d. each. These were the bottom prices, and although one or two agents declined to quote Tulips, the prices of the best quality blooms may be taken at the following averages for the week:—Bartigon, 9d. to 1/-; W. Copland and Couronne d'Or, 8d. to 10d.; Lucretia and Double Yellow, 1/- to 1/3; Prince of Austria, La Reine and Pride of Haarlem, 6d. to 9d.; and Murillo, 6d. to 8d. Daffodil prices also suffered, though not to the same extent, Emperor making 2/- to 3/- per dozen bunches; Sir Watkin, Golden Spur and princeps, 1/6 to 2/-; Barrii conspicuus, 1/6 to 2/6; and ornatus, 1/- to 4/-. Lilium longiflorum (Harrissii) and Richardias experienced a sharp decline, being only worth from 3/- to 6/-. White Lilac realised 6/-, and coloured varied from 1/6 to 4/-; Carnations, 2/6 to 5/-; English Violets, 1/6 dozen; Wallflowers, 1/- to 2/-; Iris, special, 8/- to 10/-; ordinary blue, 2/- to 2/6 for 12's; and Guernsey blooms, 4d. to 8d. for 6's.

Business in the fruit market opened quietly, but showed a little more activity towards the end of the week. Apples, which are becoming scarcer, made the following values:—Canadian Baldwin, 23/- to 26/- per barrel; Russet, 28/- to 30/-; Greening, 30/- to 33/-; U.S. Albemarle, 30/- to 40/-; Ben Davis, 24/- to 26/-; Gano, 22/- to 27/-; Baldwin, 22/- to 26/-; Oregon Newtown, 12/6 to 17/6 per case; and Winesap, 10/- to 14/-. Orange values were just steady; Valencias, 300's, realised from 8/- to 12/-; 240's 11/- to 15/-; 360's and 504's, 7/- to 12/-; 420's, 16/- to 26/-; Murcia 300's, 14/- to 18/-; 240's, 14/6 to 22/-; Jaffa, 21/- to 24/-; Californian Navel, 20/- to 24/-. Porto Rico Grape Fruit, 26/- to 28/-; Blue Goose brand, 28/- to 32/-. Palermo Lemons 300's sold for 9/- to 12/-. South African Pears continued to be plentiful. Beurré Hardy were worth from 5/6 to 6/6; Beurré Bosc, 5/- to 6/-; Beurré Diel, 4/6 to 5/-; Keiffer, 3/6 to 4/-; Doyenné du Comice, 8/- to 9/- and Louise Bonne of Jersey, 5/6 to 6/6. Kelsey Plums sold for 7/- to 10/6. Grapes, Red Hannepoot, 10/- to 14/-; Waltham Cross, 12/- to 16/-; and Australian Black Grapes, 26/- per case.

In the vegetable section first consignments of Guernsey Tomatos made 3/6 to 5/- per lb. After selling up to 32/- per cwt. on Tuesday, forced Rhubarb dropped to 16/- per cwt. on Friday, while outdoor Rhubarb declined from 22/- to 10/-; and the Polmont product was worth 26/-. Kidney Beans realised 1/3 to 1/6; Mushrooms, 2/- to 2/6 per lb.; salad, 2/6 per dozen; Asparagus, 1/- to 1/3; English Cucumbers, 9/- to 10/- per dozen; Dutch Cucumbers, 6/- to 7/- per crate; Dutch Lettuces, 7/- to 8/- per crate; Radishes, 2/6 to 3/-; Syboes, 5/- to 6/-; French Turnip, 10d. to 1/-; and Carrots, which were scarce, 1/2 to 1/4.

TRADE NOTES.

READERS requiring information and advice respecting Patents, Trade Marks or Designs should apply to Messrs. Rayner and Co., Patent Agents, of 5, Chancery Lane, London, who will give free advice to readers mentioning this paper.

As a result of increasing business Mr. Alfred Dawkins has taken into partnership Mr. A. Donald Blaxill, of Colchester. Mr. Blaxill was a student at Wisley and holds the National Diploma of Horticulture (Seed Section); he has served with Messrs. Dobbie and Co. and with Messrs. Watkins and Simpson. The business at 408, King's Road, Chelsea, will continue to be carried on under the title and style of Alfred Dawkins, and Mr. Dawkins will continue his active interest in it.

SCHEDULES RECEIVED.

ROYAL NORFOLK AGRICULTURAL ASSOCIATION.—Horticultural Exhibition at Summer show to be held at Gt. Yarmouth on June 16th and 17th.—Secretary, Mr. G. W. Allinson, London Road, Wymondham.

POST OFFICE SAVINGS BANK HORTICULTURAL SOCIETY.—Summer exhibition to be held on Tuesday, July 6th; autumn exhibition to be held on September 14. Secretary, Mr. G. A. Duncan, Post Office Savings Bank, Blythe Road, W. Kensington, W. 14.

THE ROUNDHAY (LEEDS) HORTICULTURAL SOCIETY.—Exhibition to be held in conjunction with the National Rose Society's Jubilee provincial show on July 13 and 14, in Roundhay Park. Secretary, Mr. Geo. E. Horner, 67, Jackson Avenue, Roundhay, Leeds.

GARDENING APPOINTMENTS.

Mr. G. Humphrey, previously gardener to H. GREEN, Esq., Warfield Dale, near Bracknell, and two years with Miss HENDERSON, at Churchfield House, as gardener to H. B. BROWN, Esq., Hinefield, Bath Road, Slough, Bucks.

Mr. A. J. Jones, as gardener to Lord SUFFIELD, at Gunton Park, Norwich, in succession to the late Mr. W. ALLEN. (Thanks for 2/6 for R.G.O.F. Box.—EDS.)

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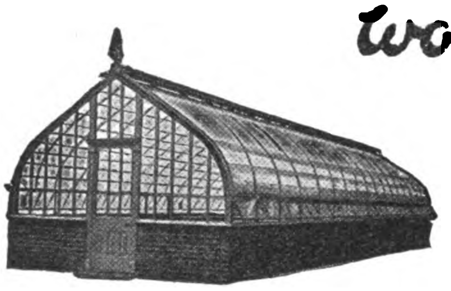

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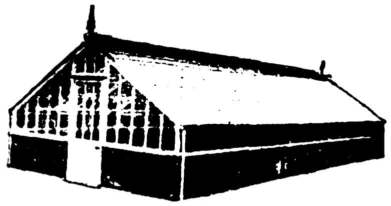

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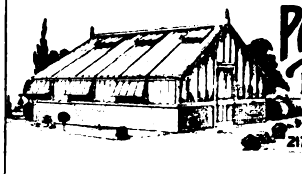

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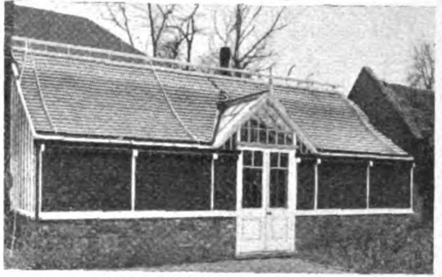

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THE
Gardeners' Chronicle
No. 2052.—SATURDAY, APRIL 24, 1926.

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Average Mean Temperature for the ensuing week deduced from observations during the last fifty years at Greenwich, 49·0.

Actual Temperature—
The Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, April 21, 10 a.m. Bar. 29.45. Temp. 45°. Weather, Wet.

A Benefaction to Horticulture. We understand that the Council of the Royal Horticultural Society has recently received an offer—on the acceptance of which it is now deliberating—of a garden some five acres in extent which was owned and laid out by one of the most distinguished Englishmen of his time. The proposed benefaction is indeed a most interesting one. It includes not only the garden, but also a small Tudor house which would make an admirable residence for a curator, and a large fifteenth century barn 140 feet long which, with very slight adaptation, would make an excellent museum and show-hall. The conditions attaching to the benefaction are by no means exacting. The benefactor who desires to commemorate one who had a genuine love of gardening and who believed profoundly in the importance of economic horticulture, asks that the garden should be known by the name of the man whose memory it is intended to commemorate and that on certain days of the year the garden should be open to the public. Needless to say those of the Council who do not know the garden already will need to inspect it before coming to a decision whether such a gift may be fittingly administered by the Society; that done, we have little doubt but that the Council will accept with grateful enthusiasm the trust which acceptance of the benefaction will impose upon them. For our part we can think of no more acceptable benefaction to a Society such as the R.H.S. Here is a garden already laid out, of manageable dimensions which, under the control of the Society, should become a model and an exemplar of what the small garden should be. The possession of this garden should be an advantage, both to the general members of the Society and to the students at Wisley. With proper organisation it should be possible to use the garden as a source of opportunity for picked students of the Wisley School of Horticulture to gain experience in garden maintenance and management. The existence of a house on the estate might make it possible to provide accommodation for the students engaged in working in the garden. Such an annexe to Wisley should in these days of motor transport be by no means unmanageable by the Wisley staff and in any case the cost of upkeep should be small in relation to the advantages which the acquisition of the garden offers. Moreover, the proposal opens out wide possibilities that it may be followed by other similar benefactions, with the result that in the course of years the Society may hold in trust for the people of this country a series of gardens in different districts, each of which would constitute a centre whence would diffuse knowledge of gardening. In no better way could the standard of gardening in England be maintained and raised. Not only from the aesthetic, but also from the economic point of view would a series of gardens of this type be an asset of incalculable value to the Society and to the nation. The gardens would provide space for the testing of all manner of economic horticultural plants in relation to soil and climate and round each of them the horticultural interests of each district would be grouped. Horticulturists of all classes will recognise the generosity which has prompted the proposed benefaction, will welcome it no less for its own sake than as a perfect memorial of a great Englishman and will look hopefully to the Council to discover ways whereby the gift may be accepted and put to its full measure of usefulness both to the members of the Society and the country at large.

Cider Testing Day at Long Ashton.—The Agricultural Committee of the University of Bristol has sent out invitations to attend the Research Station, Long Ashton, Bristol, on Thursday, May 6, on which day the ciders made during the season 1925-26 will be displayed, and the fruit plantations of the Station will be open to visitors from 11 a.m. to 4 p.m. During the course of the day the experimental work in progress in the plantations and in the laboratories will be explained by members of the staff.

Wine from Loganberries.—Notwithstanding a big output of canned Loganberries the growers of the fruit in British Columbia found themselves faced with the difficulties of over production about four years ago. The suggestion that the surplus fruits should be used for wine-making was carried out, with the result a company in Vancouver Island commenced with an annual output of 5,000 gallons of good wine. The wine is of deep crimson colour, dry, and is said to possess tonic properties. It takes two years to mature. The estimated production for the present year is 100,000 gallons. The wine is to be called Vin Soleil.

Resignation of Mr. W. H. Morter—Mr. W. H. Morter has resigned his position as Chief Officer of the City of Birmingham Parks Department, and his many friends will regret the cause—ill-health. Mr. Morter has done valuable work at Birmingham since he was appointed in 1903, and during his period of service the pleasure grounds and parks of that city have increased from 448 acres to over 2,185 acres. Mr. Morter's charge included, in addition to the public parks and open spaces, the supervision of six cemeteries and 16,000 allotments. A portrait of Mr. Morter accompanied by a short biography was published in *The Gardeners' Chronicle* of August 27, 1921, p. 103.

City of Westminster and Covent Garden Market.—The Improvements Committee of the Westminster City Council has recommended the Council to appoint a special committee to investigate the circumstances connected with Covent Garden Market in its relation to the Council. The Improvements Committee has received a letter from the London Fruit, Flower and Vegetable Market Association, Ltd., on the subject of the proposed removal of the Market, and the Committee considers that the suggested removal is a subject of great importance to Westminster. The Committee is of the opinion that the full facts in connection with the market should be investigated at once and laid before the Council at an early date.

Rhododendron Show.—Many horticulturists are looking forward with pleasurable anticipation to the Rhododendron show which will be held in the Royal Horticultural Society's Hall on Tuesday, April 27. As already explained in these pages, this entirely new exhibition is promoted by the Rhododendron Society, a Society composed of enthusiastic amateurs who specialise in Rhododendron species and garden hybrids. The exhibition should afford visitors an excellent opportunity of seeing flowers of many of the rarer members of this popular genus.

Legacies to Gardeners.—The late Mr. Charles Legrand, of Seabrook, Lancing, Sussex, who died on January 5, left his gardener, Mr. George Killick, a legacy of £250.—The late Mr. James Allen of Churt Lea, Farnham, Surrey, who died on March 9, aged ninety-three years, bequeathed £50 to his gardener, Mr. James Ongley, if still in his service, and £50 each to Mr. George Bancock, Mr. Arthur Dudman, and Mr. Thomas Larby, gardeners at his daughter's residence, Churt Lea, if still in her service.—The late Miss Hannah Stables, Lane Ends, Horsforth, Leeds, who died on February 17, bequeathed a life annuity of £50 to her gardener, Mr. Cyril Knapton.

Coal versus Charcoal.—The substitution of coal for the old-time charcoal by the Paris housewife for domestic use has brought in its train the inevitable pollution of the air. Two professors at the College de France, M. Bordas and M. d'Arsonval, have analysed samples of air taken in the gardens of the Palais Royal, and they state that it contains sufficient quantities of carbon, sulphuric acid, coal tar and chlorine to be definitely noxious. To mitigate the evil to human and plant life the more general use of gas for domestic purposes is recommended.

Special Cups for Paeonies.—We remind our readers that Mrs. Edward Harding, of Burnley Farm, Plainfield, New Jersey, the well-known authority on garden Paeonies, has presented to the Royal Horticultural Society a sum of money which is to be devoted to the provision of three cups, one of which will be offered for award in each of the years 1926, 1927 and 1928, at one of the Society's fortnightly shows. The competition will be open only to Amateurs, and exhibits must consist of three flowers of each of six varieties of Paeonies. Flora Medals in silver-gilt and silver will be offered by the Society as second and third prizes respectively. This year the competition will take place on either June 1 or June 15, according to weather conditions, and entries must reach the Secretary, R.H.S., Vincent Square, S.W.1., not later than by the first post on the previous Wednesday in either case. The decision as to the date of the competition will be made on or before May 22, and a card will be sent to all who have written to ask that the notification should be sent them.

Appointment at Kew.—The Government of the Union of South Africa has appointed Miss I. C. Verdoorn, of the Division of Botany, Department of Agriculture, Pretoria, as Assistant for South Africa at the Herbarium, Royal Botanic Gardens, Kew.

Cinchona in the Belgian Congo.—For the past twenty-five years serious efforts have been made by the Belgian Colonial Government to introduce the Cinchona into the Congo, with a view to forming a local source of supply of Quinine for the use of the inhabitants, both white and coloured, of the colony. The tree has for many years been grown in Java with conspicuous success, and cultivated for a long period in Ceylon and parts of India. The experiments carried out in the Congo tend to show that the Red Cinchona will grow almost anywhere in the Colony, except in districts below 300 metres above sea-level. Plants imported from Eala, which has an altitude of 370 metres, have resisted the equatorial climate for twenty years, and others growing in Mani, Thysville and Kisantu persist in spite of a dry season lasting five months. An experimental station has been instituted at Kivu, under the Director General of Agriculture, which should show some interesting results. Up to the present, the seeds imported have not proved very satisfactory, and probably better results will be obtained with seeds harvested in the colony.

Long Service at Leningrad.—The head gardener of the Leningrad Pomological Garden, Mr. Ludwig Köllmer, has just completed fifty years' service. He was born in 1858 at Ohrdruf, Thüringen, and studied gardening with Petersеim, at Erfurt. At the end of his training he was recommended by the Bürgermeister of Ohrdruf to Mr. Regel, the founder of the Leningrad Pomological Garden; and there he has remained ever since, both during the proprietorship of Regel and Kesserling, and since then in the service of the Russian State, to whom the garden now belongs. Mr. Köllmer has a wonderful knowledge of his work, and also an indefatigable energy. A visitor to the grounds only last autumn found Köllmer working alone under a heavy downpour of rain. On being asked where were his staff, he calmly replied that they had all taken shelter! He has been promised a pension by the Russian Government, so the evening of his life should be, as he well deserves, peaceful and free from anxiety.

Kew Guild Dinner.—The annual meeting of the Kew Guild will be held at the Clarendon Hotel, Hammersmith, London, W., on Wednesday, May 19, and will be followed by the annual dinner which will commence at 7.15 p.m. Kewites who propose to attend the dinner are requested to communicate as early as possible with Mr. E. G. Dunk, 197, Kew Road, Kew, Surrey.

Cymbidium Diana at Birmingham Botanic Garden.—Among the many interesting plants to be seen in the Birmingham Botanic Garden at present, one of outstanding attractiveness is a specimen of Cymbidium Diana bearing a spike five feet long, carrying forty-three flowers. This fine hybrid is the result of crossing C. eburneo-Lowlanum with C. Pauwelsii. Mr. Humphreys is to be congratulated on the fine cultivation of his plants.

M. Louis Gentil.—The Curator of the State Botanic Garden at Brussels commenced his horticultural education at the Horticultural School of Tournai, and during his term he passed first among the other students. In 1892 he came to England and worked for some time in the market nursery of Mr. Aldridge at Petersham, Surrey, and later served in Messrs. J. Veitch and Sons' Chelsea nursery. In 1896 he entered service at the Royal Botanic Gardens, Kew, where he remained for about eighteen months before accepting the position of Superintendent of the Government Plantations of the Belgian Equator district and Forest Controller of both Equator and Lake Leopold II. districts. From 1900 to 1902, he was forest Inspector of the Congo Free State, and in the latter year returned to Belgium to become Curator of the Botanic Garden at Brussels. On his way out to the Congo in 1900, M. Gentil visited all the botanic stations on the West Coast of Africa, from Bathurst to Boma, and to all the authorities concerned he had a special introduction from the Director at Kew. During those visits he obtained many thousands of plants and packets of seeds for the Botanic Garden at Eala, Congo, a garden near Coquilhatville, Equator, which he founded in 1899. M. Gentil has had an exceedingly active life and during his stay in England he was for nearly five years secretary of the Société Français d'Horticulture de Londres. From 1903-21 he was secretary of the Société Royale de Flore at Brussels and also acted as secretary for the monthly horticultural meetings held in that city. In 1906 he founded the *Tribune Horticole*, a weekly paper, and the *Tribune des Societes Horticoles*, a fortnightly periodical, the former of which he continues to edit. For many years M. Gentil was technical advisor for the floral decoration of the State Railway Stations in Belgium, and he has for many years been a corresponding member of the Royal Horticultural Society, the National Chrysanthemum Society, Société Nationale d'Horticulture de France, and other horticultural bodies. In 1915 he was elected President of the Kew Guild. He has published several works concerning Rubber and other economic plants in the Congo, and a large number of remarkable plants that he collected in the Congo have been described in the *Annals de Musee de Tervueren* while many of the living specimens that he collected are now to be found in the Jardin Colonial, at Laeken. For his services to Belgian horticulture, M. Gentil has received numerous decorations, including several Congo Orders and the appointment of Chevalier de l'Ordre de Leopold. M. Gentil is well-known in the metropolitan district, and is almost as much at home in Paris as in Brussels. He is an amusing and racy reconteur and has the great gift of making and keeping many friends.

M. LOUIS GENTIL.

Rubber Still to be Restricted.—The Singapore correspondent of Reuter's Press Agency has cabled that the Planters' Association of Malaya has just passed a resolution strongly urging the retention of the Stevenson restriction scheme until the end of October next at the least.

Daffodil Shows Cancelled. — The Midland Daffodil Show fixed for April 21 and 22 had to be abandoned owing to the earliness of the season. For the same reason the Lincolnshire Daffodil Show, which should have been held at Spilsby on April 27, has also been cancelled. The abandonment of these shows is a great disappointment to many growers and raisers who deeply regret that their flowers are over as a consequence of the brilliant weather at Easter time.

Retirement of an old Gardener.—Mr. J. Johnson, gardener to Mrs. F. Platt, Barnby Manor, Newark, Notts., has just retired at the ripe age of eighty-two years, having completed fifty years' service with his present employer and her late husband, F. Platt, Esq., J.P. He took charge at Sugwas Court, Hereford, in November, 1876, and then went to Sutton Hall, Sutton-on-the-Forest, Yorks, where the late Mr. Platt stayed for three years before he purchased Barnby Manor Estate taking Mr. Johnson with him in September, 1880. At Barnby Manor there was ample scope for Mr. Johnson's abilities, and he laid out the pleasure grounds and gardens which were noted as being one of the beauty spots of Nottinghamshire. Mr. Johnson commenced his career at the Hyde Nurseries, Manchester, and after five years' nursery experience went to Holmwood Park, Tunbridge Wells, afterwards becoming plant foreman under the late Mr. Stevens at Trentham Hall, Staffordshire, and, later, general foreman under the late Mr. G. Tillyard, at Brocklesby Park, Lincolnshire. Mr. Johnson has received numerous letters of congratulations and good wishes from his gardening friends upon his retirement, and all trust he may have good health for many years to enjoy his well-earned rest. We understand it is Mrs. Platt's wish that this old servant shall continue to occupy the lodge he has lived in for so many years. His son succeeds him as gardener at Barnby Manor.

The Breaking of Tulips.—The divisions into which the older florists' classified Tulips is not well-known to the modern generation of gardeners, and the following interesting account of the breaking of Tulips, given by Mr. C. W. Needham, in a lecture before the Wakefield Paxton Society, may be of interest, especially to our younger readers. Mr. Needham stated that the florists' Tulips were divided into three classes; the Bybloemens, which were lilac, purple, blue, or black on a white ground; Roses, of scarlet, crimson, or red colour on a white ground; and Bizarres, yellow grounds, marked with red or purple, making brown or black. There were really only three colours, red, blue and yellow, or divisions of them, and the three classes were in turn each in three stages or states—breeder, feathered or flamed. When first bloomed as a seedling the Tulip came self-coloured, and was known as a breeder or mother Tulip, probably because of its vigour and rapid increase. At some period in the life of the flower a great change took place, the colour previously diffused all over the petals becoming concentrated on the edge of the petals, or grouped into markings all around the edge and in the middle of the petal. When the colouring was all around the edge of the petal, the body being pure white or pure yellow, the Tulip was said to have broken "feathered." But when in addition to being feathered all around the edge of the petal the same colour ran down the centre, making a beam and then branching out to the feathering as though each petal resembled a miniature Beech tree, the Tulip was said to be in the "flamed" state. This "breaking" was sure to take place at one time or another, it may be after one year's growth or twenty, but it would happen. No one knew why or when this rectifying would occur, and in that lay one of the chief charms of the flower. As a lady took off her morning gown and put on her evening dress, so the Tulip appeared one time in the self-coloured garb, and another time in the rectified state of "feathered" or "flamed." The cause of this extraordinary change, which was without parallel in the floral world, was not easy of discovery, nor could any reason be assigned for the "breaking" of a breeder in any particular year. It was known that some varieties would break more easily than others, and that a change of soil and situation was likely to induce breaking. Thus were to be found in a collection, breeder, feathered and flamed Tulips of each of the three classes, Bybloemens, Roses and Bizarres.

Distribution of Forest Trees in Ontario.—The distribution of forest trees by the authorities in Ontario has assumed very great importance, for in 1925 no fewer than 5,278,137 trees were sent out from the Government nurseries. In 1905 the output was only 10,000 trees, yet each following year the increase was considerable, until, in 1911, over half-a-million trees were sent out. During the war years the numbers fell considerably, but in 1922 more than a million trees were sent out by the Government. The distribution in 1925 was much the largest in the history of the scheme.

Canning versus Bottling of Fruits.—On the occasion of a recent conference held at the Midland Agricultural College, Mr. A. Appleyard, M.Sc., Director of Chipping Campden Research Institute opened a discussion on "Fruit Preservation and the Utilisation of Fruit." He pointed out the perishable nature of most fruits and the difficulty of regulating supply and demand, and considered fruit pulp for jam making an important factor in this connection. He expressed the belief that there was a great field open in connection with canning, and a need for development in the manufacture of cider and of fruit juices. He stated that the value of imports of fruits—which could be grown in this country—amounted to £10,000,000. He demonstrated a small appliance which has been perfected at Chipping Campden, in consultation with the manufacturers, for the sealing of cans without solder, and which will be extremely useful for small growers, as it may be worked by hand, by unskilled labour. He pointed out that the canning of fruit for sale was much better than bottling: that the fruits so preserved were of better flavour and that there was no possibility of injurious effects when fruit is placed in lacquered cans. Furthermore, the transport of cans is less costly than in the case of bottles. Mr. Appleyard urged the need for scientific work in this connection and for development of canning on a commercial scale in this country. He occasioned some surprise by asserting that one firm in Wisbech canned 300 tons of Apples last year. A lengthy discussion followed, and all present were impressed by the usefulness of the small can-sealing appliance demonstrated by the lecturer.

Gift to Stonehouse Public Park.—Mr. Alexander Hamilton, The Newlands, Kidderminster, has intimated his desire to give £1,000 to defray the cost of an addition and the laying-out of the same to the Alexander Hamilton Park, Stonehouse, N.B. This makes a total gift of £3,000 for the park which bears his name. Mr. Hamilton is a native of Stonehouse, and his beneficent gifts have been highly appreciated by the community.

R.H.S. Gardens Club.—The eighteenth issue of the *Journal* of the R.H.S. Gardens Club contains an interesting account by Mr. G. Fox Wilson, of the Third International Congress, on Entomology, held at Zurich in July, 1925; Mr. Wilson describes the trip out and the excursions arranged for the delegates and deals lightly and pleasantly with the proceedings of the Conference. Mr. Norman Humphrey gives an excellent description of life and conditions "By the Blue Nile," while Mr. W. H. Fentiman discusses the many beautiful and extraordinary features of the late Sir Frank Crisp's wonderful garden at Friar Park, Henley. Quite naturally, a good deal of the *Journal* is devoted to the movements of members of the Club, progress of students at Wisley, correspondence from members in distant lands, the report and accounts of the Club, and a list of members' names and addresses. Death deprived the R.H.S. Gardens Club of many prominent members during 1925, including Mr. W. R. Dykes, Professor Lefroy, Mr. J. K. Ramsbottom, of our own staff; Mr. Geoffrey Carter Page and Mr. W. Rogers. The *Journal*, admirably edited by Mr. John Fraser, F.L.S., contains one or two quaint misprints in regard to dates; the Zurich Conference was held in 1925 (as reported in *The Gardeners' Chronicle* of August 15, 1925) and not in July, 1926!; while Mr. C. H. Curtis is credited with having left Chiswick in 1982!

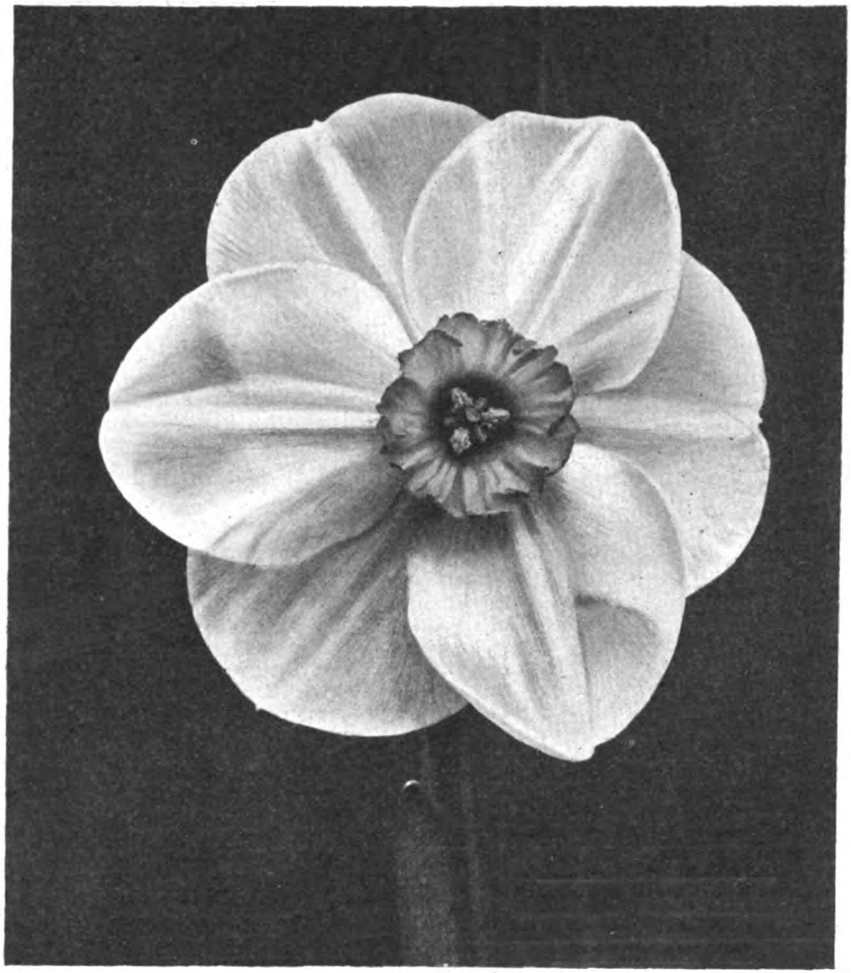

FIG 152.—NARCISSUS TRABOE.

R.H.S. Award of Merit, April 17. A giant white Barrii variety, with deep yellow, orange-rimmed cup. Shown by Mr. P. D. Williams (see p. 294.)

Appointments for the ensuing Week.—Tuesday, April 27: Rhododendron Society's show. Wednesday, April 28: Sheffield Chrysanthemum Society's meeting; Pangbourne Gardeners' Mutual Improvement Association's meeting. Saturday, May 1: Blackburn Horticultural Society's meeting.

"Gardeners' Chronicle" Seventy-five Years Ago.—*The Chrysanthemum, a spring-flowering Plant.*—The following plan of culture was practised by me in 1836 and 1837, and on the 10th of May, 1837, I gained a Banksian Medal at Chiswick for a Chrysanthemum, having sixty blossoms on it, all open at one time. The sort was the Paper White, and it was perhaps the only Chrysanthemum ever seen in flower at so late a period. In the month of April I took as many suckers as were wanted and planted them out in well-prepared ground, about two feet apart. As soon as they began to grow I topped them, and continued doing so with each succeeding growth, until the plants began to get shrubby, in which condition they needed no stakes. If a succession of plants was wanted to blossom late or in the commencement of the next year, I kept topping a few for the purpose, and in dry weather I watered them with weak manure water. I potted my plants on the 1st of September in eight and ten inch pots, and started them by putting them into a close house, or pit, for seven or eight days, until they had made young roots, excluding all direct sunshine, and syringing them twice a day. My Chrysanthemums that season were very fine; plants in front of a conservatory had scarcely lost a leaf on the 5th of December, and about forty of them had not opened all their flowers; several of those which did not show bloom were put into the stove, and one of them gained the Banksian Medal in question. Now what was done then can be effected now, and during the season of growth the stem can be made to grow either long or short at the will of the cultivator. I see no reason why a Chrysanthemum should be trained up a stick, with half the stem naked, detracting from the beauty of the plant. Great improvement has been made in the blooms, but none in training, while by proper management a long succession of those beautiful winter flowers may be obtained. *James Cuthill, Camberwell, London. Gard. Chron., April, 26, 1851.*

The Week's Work.

THE ORCHID HOUSES.

By J. Collier, Gardener to Sir Jeremiah Colman, Bart., Gatton Park, Reigate, Surrey.

Shading and Ventilating.—During April the shading and ventilation of the various divisions calls for very special attention. The weather is usually very changeable, sudden bursts of sunshine often alternating with cold showers, making it difficult to maintain a uniform temperature in the houses. By close attention to such details as damping the bare spaces, spraying overhead, shading and ventilating, extreme fluctuations in the temperature may be prevented. The warmer, or East Indian division will need the greatest care, as the majority of the inmates are growing fast and suffer injury quickly if they receive a sudden check. Very little ventilation will be necessary in this house except for an hour or so during the middle of the day, when the atmosphere is comparatively dry; air should be admitted through the lower ventilators, and the amount reduced when the sun becomes obscured by clouds.

Blinds and Permanent Shading.—If the roof-glass is stippled thinly there will be little need to use the blinds at every slight change. During bright sunshine the blinds of the Cattleya house should be lowered so soon as the temperature reaches 80° or 90° by sun-heat, or when the leaves of the plants begin to feel warm to the hand. They should be drawn up again at least an hour previous to the sun ceasing to shine on the roof-glass. The Mexican house, containing such Laelias as L. anceps, L. autumnalis and L. albida will only need shading during the hottest part of the day. Both these divisions should be freely ventilated whenever it is possible to admit air without unduly reducing the temperature. Odontoglossums should receive plenty of fresh air at all times, but discretion must be exercised in the matter. When fresh air is admitted maintain a minimum temperature of about 52° by fire-heat when necessary. It is advantageous in many ways to have the roof glass of nearly all the houses stippled thinly outside; the glass should be thoroughly cleansed before the stippling takes place. It is best done when the sun is shining fully on the glass so that the coating will dry quickly and firmly. Remove any plants that are in danger of being scorched during the operation.

THE KITCHEN GARDEN.

By F. Streeter, Gardener to Lord Leconfield, Petworth Park, Petworth, Sussex.

Vegetable Marrows.—Seedling Marrows raised last month, which have filled their pots with roots, should be transferred to cold frames over old hot-beds that have been used for early salads, Potatos, etc. Give them careful attention for the first few weeks, both as regards watering and ventilating. Shade the plants during very bright periods of sunshine for several days, and if signs of mildew appear, dust them immediately with flowers of sulphur. Cover the lights at nights when the thermometer falls below 40°. The main sowing may now be made in sixty-sized pots, to obtain seedlings for planting out-of-doors. Sow plenty of Improved Custard, the most delicious of all Marrows.

Celery.—Young Celery plants raised last month are ready for pricking off into boxes or frames. Where this is the earliest batch grown it is advisable to prick out the seedlings into close frames to secure a few good early rows. In very hot gardens it is advisable to arrange these between tall marrowfat Peas, the shade from the stakes being sufficient to enable the Celery to grow quickly. After pricking out the seedlings, give them a copious watering and dust the foliage with soot once a week; the soot should not be too fresh, and also not from the flues of the greenhouse boilers.

Globe Beet.—Make another sowing of Globe Beet to form a succession to those already up and thinned. Preparation should also be made for sowing the main crop of long varieties. The best Beets are small, straight roots, not at all coarse, and should be produced on rather poor soil which has not been manured in the past year.

Peas.—Continue to sow weekly maincrop marrowfat varieties, and where small Peas are required, Petit Pois is an excellent variety. Draw up a little soil to the stems before staking the plants. Give the shoots an occasional tie to assist them to the sticks. Mulch the earliest rows with well-decayed manure.

THE FLOWER GARDEN.

By F. C. Puddle, Gardener to Lord Aberconway, Bodnant, Taly-Cafn, North Wales.

Bamboos.—These graceful plants are commencing to grow, and the present is the best time for transplanting them. When making new plantations a site sheltered from rough winds should be chosen, and the ground should be well trenched before planting. If it is desired to increase the stock, large clumps may be divided, planting the larger pieces in permanent positions, and the smaller ones in sheltered nursery beds for the first season; or suitable pieces for planting may be split off the outer portions of the clumps without disturbing the remainder. In all cases the plants should be watered thoroughly immediately after they are planted. Desirable and hardy species include:—Phyllostachys nigra, P. viridi-glaucescens and P. aurea; Arundinaria fastuosa, A. anceps and A. nitida; the last is one of the most graceful and hardy of Bamboos. I have known Arundinaria nitida to be uninjured in a severe winter on the north-east coast when the common A. japonica has suffered severely.

Nymphaeas.—Ponds containing Nymphaeas should now receive their annual cleansing, and any necessary dividing and planting of the Water-Lilies done. To allow Nymphaeas to become crowded is to deprive them of more than half their beauty, for there is no comparison between the beauty of Water-Lilies when both foliage and flowers have sufficient room to float gracefully, and those allowed to become a crowded mass of leaves, jostling each other out of the water. In natural ponds, where there is no means of emptying them of the water, the question of dividing the clumps is not an easy problem and must depend on local conditions, but when grown in artificial ponds where provision is made for running off the water, Nymphaeas are better divided and replanted every two or three years. They may be planted in pots, tubs, baskets, or on mounds placed on the bottom of the pond, whichever method is most convenient, but whatever receptacle is used it should be sufficiently large to contain ample soil for a free development of the roots. Good, turfy loam should be used as a rooting-medium, and this may be enriched with a little well-rotted manure. Fair-sized turves should be used for surfacing so that the fine soil will not be washed away by the water. During the cleansing and planting operations care should be taken to keep the crowns moist and protected from the sun and drying winds. When arranging the plants in their positions attention should be given to the strength of each particular variety for it will be found an advantage to place the stronger growers at a greater depth than the weaker sorts, the average depth above the crowns varying from one to two feet. The charming Aponogeton distachyum which produces its fragrant white flowers from spring to late autumn, is worthy of inclusion in every collection of aquatics; it may be given the same treatment as Nymphaeas, and it is especially useful for planting in semi-shaded positions where Nymphaeas may not prove a success.

HARDY FRUIT GARDEN.

By W. Auton, Gardener to Viscount Elveden, Pyrford Court, Woking, Surrey.

Surface Cultivation.—Advantage should be taken of dry weather to ply the hoe vigorously on all fruit borders. Cleanliness is an important factor in successful fruit culture, and hoeing serves the double purpose of keeping the surface clean and promoting aeration. Small fruits that have been mulched cannot, of course, be hoed, but all soil surfaces should be constantly stirred, and they thus become an efficient mulch. In orchards of considerable size where planting has been arranged to enable a horse-hoe to work in each direction, it is not difficult to keep the surface clean and loose, as only the comparatively small area immediately round the stem of each tree has to be done by hand.

Autumn-fruiting Raspberries.—These useful fruits have a tendency to throw up a multitude of growths, and early steps should be taken to reduce them to the required number, or unnecessary loss of vitality in the plant will ensue. The vigorously-growing Hailshamberry is particularly prone to this, and if left unthinned the plantations soon become weak and unfruitful. The same principle applies, in a less degree, to most of the other rambler type of fruits, such as Loganberry, Blackberry and Lowberry, the shoots of which should be regulated in the early stages of growth to meet the needs of the space available for them.

Gooseberries.—To ensure ample space for the development of the fast swelling berries, and to facilitate the gathering of the fruits later, some disbudding or close pinching in the centre of the bushes should now be carried out. Keep a close watch for caterpillars and spray the bushes immediately they are detected with Katakilla. Keep the surface of the ground between all bush fruits constantly stirred, both to keep it free from weeds and also to create a soil mulch to check evaporation.

Strawberries.—Plantations which have not been mulched should now be thoroughly cleaned preparatory to covering them with clean straw or litter to serve as a bed for the ripe fruits. Should frosts occur while the plants are in flower, this litter may be made to serve a protective purpose by drawing it lightly over the plants.

Aphis.—Watch all fruit trees closely for signs of green or black flies and spray immediately with Quassia extract or other approved insecticide so soon as they make their appearance. Cherries are particularly susceptible to the attacks of black fly, and often become infested before the fruits set. If this occurs the affected shoots should be dusted with Tobacco powder or Hellebore powder. After the fruits are set, spray the trees thoroughly with a well-prepared nicotine wash, syringing them heavily with clean water on the following day.

FRUITS UNDER GLASS.

By T. Pateman, Gardener to Sir Charles Nall-Cain, Brocket Hall, Hertfordshire.

Peach Trees in Borders.—Peaches and Nectarines growing in borders will require frequent attention with regard to tying and training in the young growths. The crop will also need attention in thinning. Peaches should be thinned to about twelve inches apart, while Nectarines may be allowed a little less space, but the grower should be guided by the age and vigour of the trees. It is not wise to exhaust the tree's energies through overcropping for, sooner or later, ill effects from this cause will be apparent; moreover, the fruits on overcropped trees, cannot, as a rule, be compared in flavour to those that have been judiciously thinned. When training in the young growths allow sufficient space for the foliage to expand: the strong growths may be pinched in order to regulate the flow of sap over the whole of the tree. Should the weather prove cold and frosty at night, the temperature may be allowed to drop to 57°, but on mild nights it may rise several degrees higher without causing harm. Close the house as early as the aspect will allow, when the temperature may rise to 75° or 80° with sun heat. Spray the trees with rain water on all bright days, and damp all bare spaces to create growing conditions. Watch carefully for insect pests, and if found to be present, take immediate steps to combat them.

Cold Orchard House.—Most of the trees in the cold orchard house have passed out of flower and will need frequent attention with regard to disbudding the shoots and thinning of the fruits. The trees should never lack moisture at the roots, especially those that are growing in pots; the latter will require attention several times daily during hot, dry weather. It is surprising how quickly the soil dries out when an abundance of fresh air is admitted to the houses. In low-lying districts and near a large expanse of water, Peach trees are often attacked by mildew; this disease, if not prevented in the early stages, will do a great deal of harm to the fruit and foliage, for fruits attacked by this fungus carry the blemish to the end. To prevent this the trees should be sprayed with a mildew wash so soon as the fruits have set, or so soon as it can be done safely without injury to the young fruits. Watch carefully in dull, damp weather for further outbreaks of mildew, and spray the trees at once to combat it.

Late Pot Strawberries.—The latest batch of Strawberries is generally grown in a cool house to produce fruits just before they are obtainable from a warm border in the open. Extreme care is needed to ensure success with this late crop, especially in watering the roots. With drying winds and increasing sun power, watering will need attention several times daily, for if the roots are allowed to remain dry for any considerable length of time the berries will be ill-shaped and deformed. Weak liquid manure should be given as alternate waterings during such time as the fruits are swelling, but the use of stimulants should be discontinued when the berries are on the point of ripening.

PLANTS UNDER GLASS.

By JOHN COUTTS, Assistant Curator, Royal Botanic Gardens, Kew.

Cyclamen.—The more forward plants of Cyclamen latifolium that have been wintered in thumb pots, should, if not already attended to, be transferred forthwith to larger pots, those three inches in diameter being suitable at this stage. About July they should be ready for shifting into their flowering pots, which should be five inches or six inches in diameter, according to the strength of the individual plants. The potting soil should consist of a rich, medium loam, mixed with a little flaky leaf-mould and sufficient clean, coarse sand, or better still, old mortar rubble, to render the texture porous; lime in some form is essential for Cyclamens. If the loam is very heavy it may be necessary to use a larger proportion of leaf-soil. From now onwards, the plants should be grown in perfectly cool conditions, either in low pits or cold frames; the latter are preferable as the lights may be removed from them entirely towards the end of the summer, thus allowing the plants to benefit by the night dews. The Cyclamens should be shaded from bright sunshine and kept well syringed, especially in the afternoons, just before the lights are closed for the day. Careful watering is essential, especially after repotting. When the plants have well-filled their flowering pots with roots, the latter should be given diluted liquid manure and clear soot water, also a good guano for a change. Cyclamens are subject to attacks of aphis, thrips and red spider, also the Begonia mite, all of which must be carefully guarded against.

Thyrsacanthus rutilans.—This plant has been in flower for several weeks past. It may be propagated now from cuttings, which will root readily in a warm case. One-year-old plants are seldom tall enough to display the long, drooping racemes to advantage, thus at least a portion of the old plants should be grown on for a second year, when they should attain a height of three feet or more. They should be grown on in a temperature of about 60° until they come into flower, when they may be removed to a greenhouse where the night temperature does not fall below 45°. This is, I realise, contrary to the usual practice, as this plant is commonly regarded as a subject for the stove, even when in flower.

FOR NORTHERN GARDENERS.

By A. T. HARRISON, Gardener to the MARQUIS OF AILSA, Culzean Castle, Maybole, Ayrshire.

Broccoli.—The main sowing of winter and spring Broccoli should now be made, choosing well-known and proved varieties for the most part, but with Broccoli, as with many other vegetables, improvements are continually being made, and it is well to try a few of the newer varieties alongside of the older ones. Among these newer sorts I have been greatly pleased with Sutton's Peerless strain of hardy Broccoli, which includes Superb Early White for use during December and January; Snow White, for use in February and March; and Satisfaction, which is in season in April and May. These three varieties, followed by Late Queen and Methuen's June, form a succession which would be difficult to surpass, and may with confidence be given a trial wherever the mildness of the climate permits of winter Broccoli being grown successfully.

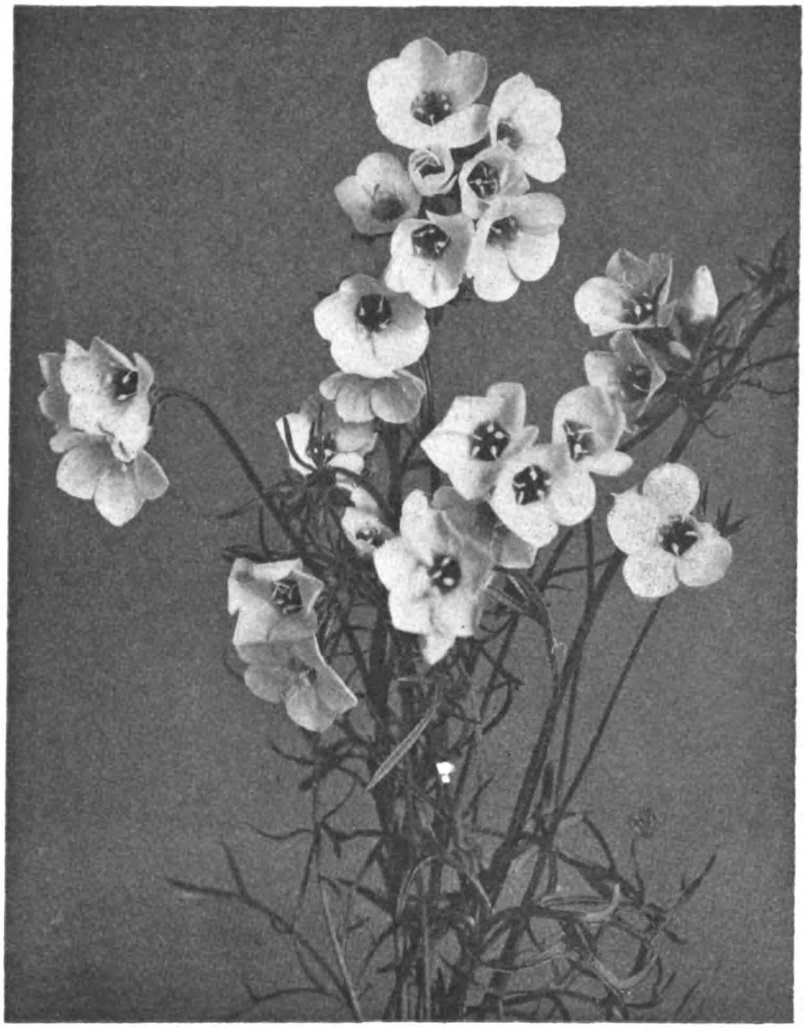

FIG. 153.—GILIA TRICOLOR VAR. NIVALIS.
(see p. 302.)

Onions.—Those raised under glass should now be planted out after being hardened off; where they are grown for exhibition purposes, the ground should have been manured heavily and trenched during the winter, and should now receive a dressing of superphosphate, which should be well-worked into the surface when preparing the ground, also a fairly heavy dressing of wood ash. Make the soil firm as the work of digging proceeds. Allow the plants plenty of room, a distance of from twelve inches to fifteen inches being none too much. If only required for ordinary purposes, Onions may be planted much closer, and very fine crops may be secured without the addition of the nitrogenous fertilisers required to produce the large bulbs.

Turnips.—The earlier sowings of Turnips require to be thinned, and in this case the roots may be left much closer than those of the later sowings, as Turnips are usually in great demand, and are pulled for use so soon as they are fit. Further sowings should be made according to requirements, and as these are not so likely to receive a check from frost, with the resultant losses by bolting, they may be made on a much larger scale with safety.

Half-hardy Annuals.—These should be pricked out into frames before they become too crowded in the seed boxes, and if not all of them are required for planting out later, some excellent flowers may be obtained by leaving them standing in the frames with the sashes removed during the summer. Some kinds of annuals, such as Larkspurs and Leptosynes are rather difficult to transplant when large, and these produce excellent cut flowers if left in the frames, provided their requirements in respect to water and stimulants are attended to.

ALPINE GARDEN.

SEDUMS.

THE plants comprising this genus are peculiarly suitable for clothing the bare and ugly surfaces of stones in the rock garden and tops of walls, their structure rendering them able to withstand any amount of drought with impunity, for which reason they are to be met with growing profusely in even the most arid and barren soils. Sedums branch freely from their roots and produce terminal cymes of variously coloured flowers, yellow, purple and white being the most conspicuous; they are mostly self-coloured. The name comes from *sedire*, to sit, in reference to the position in which the majority of the species are found sitting, as it were, on the tops of stones and projecting rocks. Many of them are natives of Britain, and the majority of the kinds to be found in our gardens are denizens of various parts of Europe, though a few species in cultivation come from North America, Japan and northern India.

Little need be written regarding the cultivation of this interesting family of Succulents for, as they are so extremely tenacious of life, it becomes rather more difficult to kill than to cultivate them. I have found Sedum acre still growing after being placed in a press, to produce a dried specimen, for several weeks. Nevertheless, although they persist in maintaining their position when once planted, they are by no means to be despised, for they are really charming, forming beautiful masses of colour upon a rockery or wall, and having much diversity of form and habit which renders them exceedingly interesting and attractive when not in flower. They are particularly suitable for small gardens in the vicinity of our great cities, for it really seems of little importance to these plants whether they are amidst smoke and fog or in the pure, sweet air of the country.

S. spectabile is essentially a cottager's plant, and is probably the most widely-grown member of the genus; and what more beautiful plant for flowering during the months of September and October can be found? It is also extensively used as a pot plant by cottagers in some rural areas. For pot culture, abundance of drainage material should be used and the soil should be of a porous nature.

Most of the Sedums are perennial, but a few, notably S. coeruleum and S. glandulosum are annual, and all are of easy propagation. The annual kinds merely require the seeds to be scattered upon the rock-work or in the crevices of an old wall when they are sure to germinate in due time. The perennial kinds are readily propagated by cuttings and also by seeds and if wanted in large quantities they may be divided, every tiny scrap being certain to make a plant.

Subjoined are the names of some very beautiful Sedums, and there are many others deserving the attention of lovers of the plants:—S. acre, S. a. aureum, S. spectabile, S. Sieboldii, S. s. variegatum, S. Anacampseros, S. anglicum, S. Beyrichianum, S. spurium, S. sempervivoides, S. oppositifolium, S. asiaticum, S. lydium S. stoloniferum, S. glaucum, S. japonicum, S. j. variegatum and S. pulchellum. *A. P. C.*

ÆTHIONEMA WARLEY ROSE.

THERE are few, if any, rock plants which attract so much attention during early April as this Æthionema, and none more fully deserves it. Neat and comely in form and habit, dwarfer, if anything, than the better-known Warley Hybrid, exceedingly generous with its flowers and with a steely-blue foliage which is invariably appealing, this charming plant must always be included in a "best dozen" rock plants.

The colour of the blossoms is not only a clear, vivid pink, but this is so intensely brilliant that, good and bright as they are, the blooms of Warley Hybrid look dull in comparison. Æ. Warley Rose, is, moreover, an easy plant in any free, gritty soil in full sun. It is quite permanent under such conditions, plants continuing for years without showing signs of failing. I generally give my plants a little mortar rubble or limestone chippings, and they thrive in the poorest of stony soil. *J.*

FLOWER GARDEN.

PORTULACAS.

THE Portulacas are brilliantly-coloured annuals which do not enjoy such a high degree of popularity as their merits deserve, and while one would not advise their being grown on cold, retentive soils, they are splendid subjects for warm and light soils. They are all dense in growth and quickly form a bright green carpet, which in sunny weather becomes thickly studded with richly-coloured flowers.

Double and single varieties are to be had; both are so beautiful that it would be difficult to state which should have the preference, and most lovers of these plants like to grow both.

Portulacas do not become exhausted from flowering so quickly as many other subjects, and even when they begin flowering early in the summer they may be depended on to continue their display until quite the end of the season. It is frequently advised to sow the seeds under glass and grow the plants in frames for planting out at the end of May, but this is not necessary; indeed, much better results are frequently obtained from sowing in the open border in April or May in the positions where the plants are intended to flower.

These annuals require a sunny situation; in most gardens there is little difficulty in placing them under the conditions most favourable to a free growth and an abundant production of flowers, for few other annuals are able to resist the effects of heat and drought, a fact which renders Portulacas of especial value on dry, sandy banks, where few other subjects will survive. *A. P. C.*

HARDY FLOWER BORDER.

GILIA TRICOLOR VAR. NIVALIS.

THE white form of Gilia tricolor, known horticulturally as G. t. nivalis or G. t. alba, is a charming garden plant easily raised from seeds, as are the type and the variety rosea. All are hardy annuals requiring a minimum of attention: given a sunny position, they produce an abundance of pretty flowers on plants of elegant habit, furnished with finely divided foliage. In G. tricolor the blooms are lavender, blue or violet, shading to white towards the centre, with a dark, purple-brown, almost black, centre, and a yellowish tube. In G. t. nivalis (Fig. 153) the flowers are white, except for the dark centre, and in G. t. rosea, the blooms are rose-coloured. According to soil or situation, the plants range from eighteen to twenty-four inches in height.

The species is native of western California, and was formerly more popular than now; indeed, Mr. Bentham, writing in the *Transactions of the Horticultural Society*, considered it "perhaps the handsomest of the new Polemoniaceae received from California, both from the general appearance of the plant, and the abundance and brilliancy of colour of the flowers."

G. tricolor is figured in the *Botanical Magazine*, t. 3463, and in the *Botanical Register*, t. 1704. In connection with the latter illustration there is a note stating that the plant "is quite hardy, and will grow in any kind of soil. The time of flowering is from July to September, but it may be retarded or advanced by a little management. Nothing can well be prettier than this is when thickly filling a bed a few feet in length and breadth."

GERANIUM MALVAEFLORUM

(SYN. G. ATLANTICUM).

As one who has grown Geranium malvaeflorum for a number of years with quite unsatisfactory results, I read with much interest the note on it by "*J.*" on page 254. His experience in districts very far apart, but both subject to a fairly heavy rainfall, exactly coincides with mine. The appearance of the flourishing mat of foliage in spring was followed by occasional flowers in May. I consider that the view taken by your correspondent, that it does not become sufficiently dried off in summer, is correct.

With a view to giving it a better opportunity to ripen off, I planted it on a sunny rockwork bank quite near Iris unguicularis, which flowered well there, but the results with Geranium malvaeflorum were not any better than in a position where it could not have been quite so well dried off.

The conclusion I came to was that a district with a moist climate was not suited to this Geranium, except by covering it with glass during its resting period in summer. But a glass shelter over a hardy plant in the open during summer is objectionable to most folks, and one can find so many finer plants that I consider it is not worth while troubling with this Geranium. *S. Arnott.*

INDOOR PLANTS.

PRIMULA OBCONICA.

PRIMULA obconica is less exacting in its cultural requirements than its congener, the Chinese Primrose. In common with P. sinensis there has been, of late years, a great improvement in habit and constitution, and also in the size, texture and colour of the flower, which includes shades of pink, salmon, blue, lilac, crimson and white.

Plants raised from seeds sown in March or early April will flower continuously during the following winter and spring. The seeds should be sown in shallow pans, using a light, sweet compost, which should be kept uniformly moist. If germinated in a temperature of about 60°, the seedlings usually appear in about fourteen days.

Sow thinly and allow the seedlings to develop into plants about half-an-inch across before pricking them off into pans or boxes, potting them later into three-inch pots. For the final potting, receptacles five inches in diameter are suitable.

During summer the plants may be grown in a cold frame, on an ash base, removing them to the greenhouse in September. Any flowers appearing during the growing season should be removed.

If desired, Primula obconica may be grown on a second season, shaking out, dividing and repotting the crowns after flowering. It thrives in any good potting mixture; if the loam is of a poor quality, the addition of a little well-decayed manure or bone-flour will enrich the compost sufficiently. *Fred W. Jeffery.*

ORCHID NOTES AND GLEANINGS.

BRASSO - CATTLEYA MARY J. S. HANBURY.

THIS very fine Brasso-Cattleya (Fig. 157) was exhibited by Fred. J. Hanbury, Esq., at the meeting of the Royal Horticultural Society held at Vincent Square on April 7, when it was awarded a First Class Certificate. It is a particularly handsome hybrid, and although of unrecorded parentage, there is evidence that B.-C. Mrs. J. Leemann has been concerned in its production, or that through some other medium the influence of Cattleya Dowiana has been handed on. The flowers are of fine size and splendid form, the broad petals being of deep rosy mauve shade, while the sepals are of a more rosy hue. The colouring of the large, beautifully frilled lip is particularly pleasing, the veining of old gold on the large golden brown area being delightful and enhanced by the surrounding purple and the mauve fringe and base. There are many fine Brasso-Cattleyas but few, if any, combine so many pleasing features as B.-C. Mary J. S. Hanbury.

GARDEN NOTES FROM SOUTH-WEST SCOTLAND.

MR. LOGAN's recommendation of Muscari conicum var. Heavenly Blue, for woodland planting (page 249) is well worthy of attention from those fortunate persons whose woods harbour no rabbits ; but to plant out that or any other Grape Hyacinth in places to which these most destructive rodents have access is to court disaster and ensure exasperation. It is useful to note how rabbits discriminate between different plants of the Lily Order. Our experience here—and we have too many rabbits—is that, while Ornithogalum, Colchicum, Convallaria, Trillium, Ruscus, Polygonatum, Allium, Chionodoxa and all species of Scilla are never devoured, though they may be sampled as novelties when first planted out, speedy destruction awaits Fritillaria, Tulipa and Muscari. Among Lilies proper, the massive foliage of L. giganteum is never injured, despite its succulent appearance. I have often seen rabbits browsing within a yard or two of a clump, but I do not know of any other Lily that it is safe to plant out without wire netting, although L. pyrenaicum, once well-established, seems quite immune. Two years ago, however, when we lifted a large number of the bulbs of this species from a wood infested by rabbits and set them in a more open space, the stems were stripped and bitten through before they could flower.

All species of Scilla and Chionodoxa seem to share with our native S. nonscripta (nutans) and S. verna some property distasteful to browsing animals, and beautiful effect may be secured by planting them out in thousands. The species ought not to be mixed, for each gives a distinct character to the ground assigned to it. The ample leafage of the Pyrenean S. Lilio-Hyacinthus would quite mar the effect of S. sibirica if the two were planted together.

There is one British squill—Scilla verna—that deserves more esteem than it usually receives from amateurs. I suppose it is sometimes cultivated, but I have never happened to meet with it in any garden except my own, into which it was introduced many years ago from the sea cliffs hard by. As a wilding, it never grows more than three inches high, crouching low in the wind-swept turf ; but it responds to shelter in our borders by spreading freely, rising to a height of six or eight inches, and bearing flattened spikes of steel-blue flowers. A curious result of cultivation is that it is now—April 8—in full flower in the garden, whereas I have never seen a blossom on the sea-side plants before the very end of May. We value this Squill as an edging to a border, or scattered among rockwork ; but Mr. Weathers does not mention it in his *Bulb Book*, and Mr. W. Robinson dismisses it from his invaluable *English Flower Garden* as "certainly not worthy of cultivation except in botanical collections." Yet he, among all writers on horticulture, has done most to teach us esteem for our native flora.

Observers are not always unanimous in estimating the merit of flowering plants. The immense variety of the Rhododendron family demands discrimination in the choice of species, not to mention hybrids, for planting, because nobody can grow them all. A small Himalayan species—R. anthopogon (so named by reason of the silky beard inside the corolla)—offers a case in point. Mr. Millais, to whom we all owe so much guidance in his sumptuous volumes on the genus, is of opinion that "its flowers are not very attractive or showy" ; whereas Sir Joseph Hooker, wrote with enthusiasm about this species in his *Rhododendrons of Sikkim* (1849). "Nothing," he declared, "can exceed the beauty of its flowers, whether we consider the exquisitely tender, membraneous, translucent texture of the corolla, with its delicate nervation, or the rich blush of the first opening blossoms, which insensibly passes into snowy white, then faintly tinged with sulphur all colours seen on one and the same plant." This species is now in flower here, conspicuous by the luminous, yet soft, flush of its small trusses.

The present spring, following upon a peculiarly trying winter, would have proved ideal for early-flowering Rhododendrons, but for a single night's snap, when five degrees of frost tarnished the display on R. arboreum, R. Fargesii, R. Thomsonii, R. floribundum and a few others. The moist warmth of April has obliterated all this defacement, but at the same time has promoted to a hazardous extent the young growth which holds the promise of next year's blossom—promise which an untimely May would render void.

One does not meet with the double-flowered Blackthorn—Prunus communis—in pleasure grounds so often as it deserves, yet it puts to shame many exotic treasures that we anxiously coddle, every spray being now thickly draped with snow-white blossom which long outlasts the single flowers of the wild plant. Indifferent to niceties of soil and shelter, this really fine shrub demands only free light and open air. *Herbert Maxwell, Monreith.*

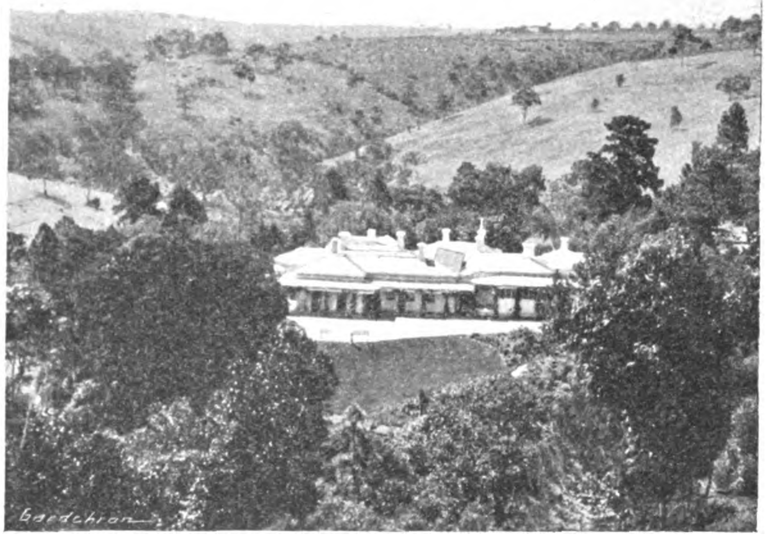

FIG. 154.—GLENARA : MR. ALISTER CLARK'S HOME, BULLA, VICTORIA, AUSTRALIA.

(see p. 301.)

NOTES FROM WISLEY.

Now that the Azaleas and Rhododendrons are in flower in the wild garden at Wisley, many attractive but less showy plants are apt to be overlooked. In the section known as the American garden, for instance, there are several interesting and beautiful plants in flower, such as Enkianthus japonicus, Rhododendron rhodora, Kalmias and Vacciniums, while the ground around them is carpeted with white Scillas.

In the field garden the flowers of the early Brooms, such as Cytisus praecox and C. purgans, a parent of the first-named, are filling the air with their rather unpleasant scent and on the pond bank some well-shaped and bushy shrubs of Pyrus Toringo are a mass of blossom. The flowers of this pretty Japanese Crab are pink in bud but pure white when mature.

Other Pyrus species in flower in the field garden include the well-known P. floribunda, which seldom fails to flower profusely, P. Niedzwetzkyana and the hybrid P. purpurea. In this section of the gardens also are some interesting seedlings of Cydonia Sargentii.

A remarkably floriferous specimen of the latter is to be seen on the rock garden, together with the cream-coloured flowers of Cydonia Maulei alba, but the best shrub of all in flower here is Viburnum Carlesii. When I last visited this plant its exquisite perfume and the fine weather had attracted numerous insects, including a Peacock butterfly, some hive bees and a queen wasp.

The sides of the waterfall at the top of the rock garden are now adorned with patches of Primula frondosa which is blooming on the rocky ledges and crevices. Another fine patch of this Primula may be seen as one enters the rock garden from the top. The plants are completely sheltered and shaded by a large Rhododendron. Various forms of Anemone Pulsatilla, such as Halleri, rubra and Farrer's variety are now in flower, and a pretty, mauve-flowered variety of the wood Anemone is blooming well.

It is satisfactory to be able to record this year a remarkable absence of a most destructive weevil (Otiorhynchus rugiformis) which for the last three years has been a pest in the alpine house. It takes a special interest in the roots of Saxifrages and particularly those of S. Cotyledon, S. Hostii and S. cochlearis. The surest means of eradicating this pest is by hand picking during repotting. Among other beautiful plants in flower in the alpine house may be mentioned the capricious Eritrichium nanum, Gentiana verna and Potentilla flagelliformis. The last-named has large, yellow blossoms with an orange centre, and silken foliage, upon the beauty of which I have remarked in previous notes. It is a native of Japan. Armeria caespitosa is this year flowering so profusely that none of its foliage is visible. A good show of bloom is also provided by many of the Primulas, among which Primula Wardii, and allied species, such as P. fasciculata and the equally tiny P. tibetica, are just coming into bloom.

Varieties of Haberlea rhodopensis which are flowering include Austinii, Ferdinandii and Stormonth's variety, while H. r. virginalis is a pure white flowered variety. Among plants of Ramondia pyrenaica which, like the Haberlea, belong to the Order Gesneraceae, is a pink-flowered seedling raised at Wisley.

Many of the earlier-flowering Narcissi of those on trial at Wisley have now been judged, and the remainder will receive attention very shortly. Among the latest to flower of the Trumpet section are Florist's Delight, with stiff blooms of deep yellow, and Ingot, the perianth of which is very slightly paler than the yellow trumpet. Handsome Barrii hybrids are seen in Burnet and Presterby, both of which have a creamy perianth which deepens in colour around the base of the rather large orange cup. An attractive member of the Leedsii group is Gyrfalcon, with a cream cup and white perianth, while Chinceta is an exceptionally vigorous Tazetta hybrid.

Although most of the spring bulbs in the borders round the laboratory are over, interest is maintained by the flowering of climbing plants on the walls. Foremost among these is Clematis Armandii with handsome white blooms. This species received the R.H.S. First-Class Certificate on April 7, 1914. *J. E. G. White.*

A TRAVELLER'S OBSERVATIONS.

Some time ago I sent you a few notes from Kodoli, in western India, where I stopped for a month with my daughter and got down to the life of the natives which I found full of interest. One Monday afternoon we set out by car to Miraj, a distance of forty miles, eight of which were so rough that an hour was occupied in negotiating them. We arrived at Miraj station, and slept in the carriage of a waiting train. At five a.m. we got up to join the Poona mail train for Bangalore. This journey occupied the whole of one day and night. Bangalore is a fine, spread-out city, and very healthy, as it stands 2,000 feet above sea-level. It is an important military station. I was taken to see a collection of Roses grown by one of the professors in the Theological College, and I mention it as typical of a great deal of gardening in India. The Rose plants were all grown in pots, ten to twelve inches in diameter, and the growth obtained was only moderate. The explanation of this style of gardening was that many British people in India are moved about from one station to another, and gardening in pots makes it possible to dispose of their "gardens" to their successors—they are taken over like furniture.

In the reception hall of an old palace which belonged to a former Maharajah, and which is now used as a public gathering-place, we saw hanging from the roof or ceiling huge hives of bees, and heard the constant droning noise arising from them. When public gatherings are held, the audiences have to be rather circumspect, as too much noise, particularly too much music, rouses the bees to inconvenient activity. Why they cannot be cleared out I could not understand; but there they were and there they had always been, I was told.

From Bangalore to Madras was another night journey. After spending the day in Madras, we started by the Ceylon mail train on a Friday night and reached Kandy on Sunday morning, this making five nights in one week spent in Indian trains, which are not so comfortable, by a long way, as the King's Cross to Edinburgh sleepers, and a traveller has to provide his own bedding in the Indian trains.

In Ceylon, vegetation is most luxurious right up to the top of the mountains; Tea, Rubber, Cocoa and Rice are everywhere. Unfortunately, we struck the end of the monsoon, and every afternoon rain prevented our getting far afield. We went one forenoon to the famous Peradeniya Gardens, where the Curator, Mr. Parsons, was very kind. The famous gardens are most extensive. From the beginning they have been noted for their very comprehensive collection of trees, shrubs and climbing plants. Almost every specimen has a history, and Mr. Parsons is very conversant with it. Flowers were few. It was the wrong season for them. Two days were spent at Colombo and then we sailed for Freemantle.

We had time to spend a day at Perth. The public gardens there adjoin the gardens of the Governor's residence. Both gardens are well-kept, but grass is only kept green by constantly sprinkling at this season. There is no such thing as lawn grass here. The lawns consist of couch or buffalo grass. At Peradeniya, one lawn we walked across was thickly carpeted with the Sensitive Plant (Mimosa pudica). The features of the gardens at Perth at the time of our visit, were the great Oleanders, eighteen feet high and twelve feet through, covered with flowers; Agapanthus and Hibiscus in great variety. Many fine trees. Palms especially, and Gums were making great growth on land recently reclaimed from the Swan River. Mr. Campbell is the superintendent. He went from the west of Scotland twenty-five years ago. His foreman is a Mr. Rowe who knew the late James Dobbie and James Grieve before he left Scotland, and he was delighted to meet me. After lunch, Mr. Campbell took us in his car round the suburbs of Perth and through the big King's Park, from which many delightful views of the Swan River were obtained. In this park the soldiers of West Australia who fell in the great war are each commemorated by a Plane tree and a metal tablet; these trees run alongside miles of avenues. Eucalyptus trees in blossom were most beautiful—deep rose flowers in great profusion. I was told that this fine flowering species is not of commercial value, but a Swan River type that is most beautiful and useful only as a decorative tree.

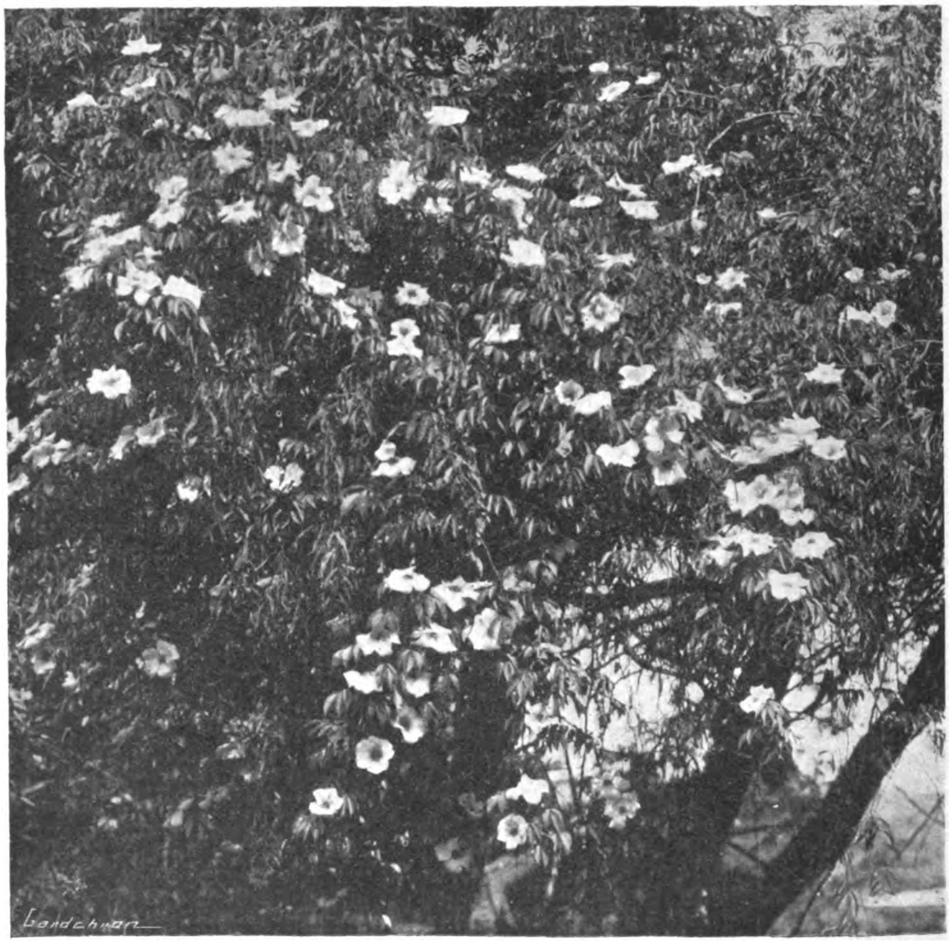

FIG. 155.—ROSA GIGANTEA IN MR. ALISTER CLARK'S GARDEN, BULLA, VICTORIA, AUSTRALIA.

Adelaide is a wonderful city; and the city proper is one mile square, set in a frame of green, half-a-mile wide, and all secured in perpetuity from building. The suburbs are really outside that half-mile frame. Mount Lofty is a fine residential place about fifteen miles away, and 2,300 feet above sea-level. One feels at home in such a place where there is some growth, as the low flat lands are devoid of verdure at this season of the year (midsummer). From Adelaide we went to Hamilton, a well-known town in the centre of a rich agricultural district. From Hamilton to Ballarat is one-hundred-and-twenty miles by car. We hardly saw a green blade of grass all the way. The Wheat harvest had been reaped and the pastures on the huge sheep stations were all yellowish-brown; nevertheless, one could not help noticing that the sheep, cattle and horses on them were in good condition. They were able to get nutriment where to our inexperienced eyes there appeared to be none. One thing which is adding to the prosperity of Hamilton is the carrying out of a policy under the Closer Settlement Act, whereby the State is resuming possession of big sheep stations and dividing them up into farms of 150 to 300 acres, on which mixed farming is being carried on by smaller men. The divisions of the agriculturists are: farmers as above, graziers, with 1,000 to 2,000 acres, who may grow sheep and Wheat; and squatters, the men with the big sheep stations of 10,000 to 50,000 acres.

Ballarat has a wonderful street called Sturt Street. It is three miles long, and the local people say it is the finest street in the world!

What about Princes Street, Edinburgh? Sturt Street is three chains wide, one chain at each side being reserved for traffic. The middle chain is planted as an avenue with fine specimen Oaks and Planes, forty to fifty years old, with flower beds on the grass between; two-thirds of the length is finished in this way.

The Botanical Gardens, under the management of Mr. Toop, are large and interesting. Why every public garden in Australia should be called a botanic garden, I do not know. Twenty-four acres are devoted to floriculture, *i.e.*, flower beds in grass. Thirty thousand people visited these gardens on New Year's Day. A collection of 1,500 Begonias in nine-inch pots impressed me, as it contained all Messrs. Blackmore and Langdon's newest sorts. Dahlias do well and are at their best in March. Tree Paeonies are favourites, and sixty varieties are grown. Pansies are much used in spring. Mr. Toop is a Nottinghamshire man.

Melbourne and Sydney are great cities, and the rush of things in them is apt to get on the nerves of a staid "old" countryman. It seems to me the great problem in front of Australia is to get its primary resources handled; to get people on to the land instead of into its cities. The entire population of the great continent is about 6,000,000, half of that number being in five cities! Melbourne has a very large Botanical Garden, over 100 acres in extent, and beautifully laid out, on a fine, bold plan. The site lends itself to this as it slopes nicely down to the river Yarra. I am told that the late Mr. Peter Barr and Mr. Smith-Dorrien said the Melbourne gardens were the finest in the world. Such sayings delight Australians! As at Adelaide, so here, the beauty spots are ten to twenty miles out of the city. Some friends took us one day to Fern Tree Gully, a delightful district, 1,800 feet above sea-level, where most things flourish.

The soil of the district, which I took a spade to examine, is a perfect brown loam, eighteen to twenty-four inches deep, full of humus, the result of perhaps a million years' growth of Gums and Tree Ferns which have, of course, been all cleared from the large garden areas. The drive homewards down Clematis Gully must be one of the finest of its kind in the world. The valley, deep down below the roadway, gave the effect of tall, straight Gum trees rising from fifty to one hundred feet above us, and yet we looked down on a platform of Tree Ferns which appeared to come up only about half the height of the Gums; this continued for miles. In to-day's newspaper I read that only by the hard work of several hundreds of the inhabitants have the forest fires, which are raging just now, been kept back from this beautiful district.

One day, on our way to another district, Macedon, we called on Mr. Alister Clark, the well-known rosarian, and a member of the National Rose Society. The houses at Macedon, of which we saw three, stand in five to fifteen acres of natural bush, with one to two acres cleared around the houses, where gardening is done to perfection. To reach Mr. Alister Clark's home one leaves the highway, which is not interesting, and drives along a side road into a valley among the hills, and his home, Glenara, and its situation, come on one as a most pleasant surprise. I enclose a photograph of it (Fig. 154). Mr. Clark is the leading Rose raiser in the far south. He called two years ago on my people at Edinburgh, and was glad that I returned the compliment, although my time with him was short. He first pointed out to me the old plant of Rosa gigantea, which he obtained from the late Mr. George Paul twenty years ago. It is a native of Burma. The plant has a stem eighteen inches in circumference at the base, and is growing up through an Acacia tree, with a spread of twenty to thirty feet (Fig. 155). The flowers are single, four to five inches in diameter, yellow in colour, bleaching to white. Mr. Clark has made this the basis of all his work, and, crossed with modern Roses, it has given him hundreds of seedlings which he has again crossed to tone them down. Quite a number of his seedlings have been introduced into commerce in Australia and New Zealand and comprise a distinct race of valuable decorative Roses, suitable for these countries.

Black Boy is, perhaps, the most widely grown of his varieties; it is an intensery dark crimson in spring. It must, I fancy, be called a climber, as I saw it in several places eight to ten feet high, flowering most profusely. Sunny South is a fine pink, decorative variety, perfumed, and flowers all the year round; Gwen Nash, is a semi-double pink variety, the petals being yellow at the base; Nora Cunningham is another semi-double, of a remarkably fine fresh pink shade. These are a few we had time to examine, but the one I fancied most was Lorraine Lee, which was producing beautifully-shaped buds in the greatest profusion, and did so all the year round, so Mr. Clark said. It is coral pink, of a bright, lustrous shade. One remarkable feature of many seedlings I saw was the thick, almost Laurel-like foliage. Mr. Clark hopes to get this wonderful foliage associated with some really good flowers in the near future. I never saw anything like it.

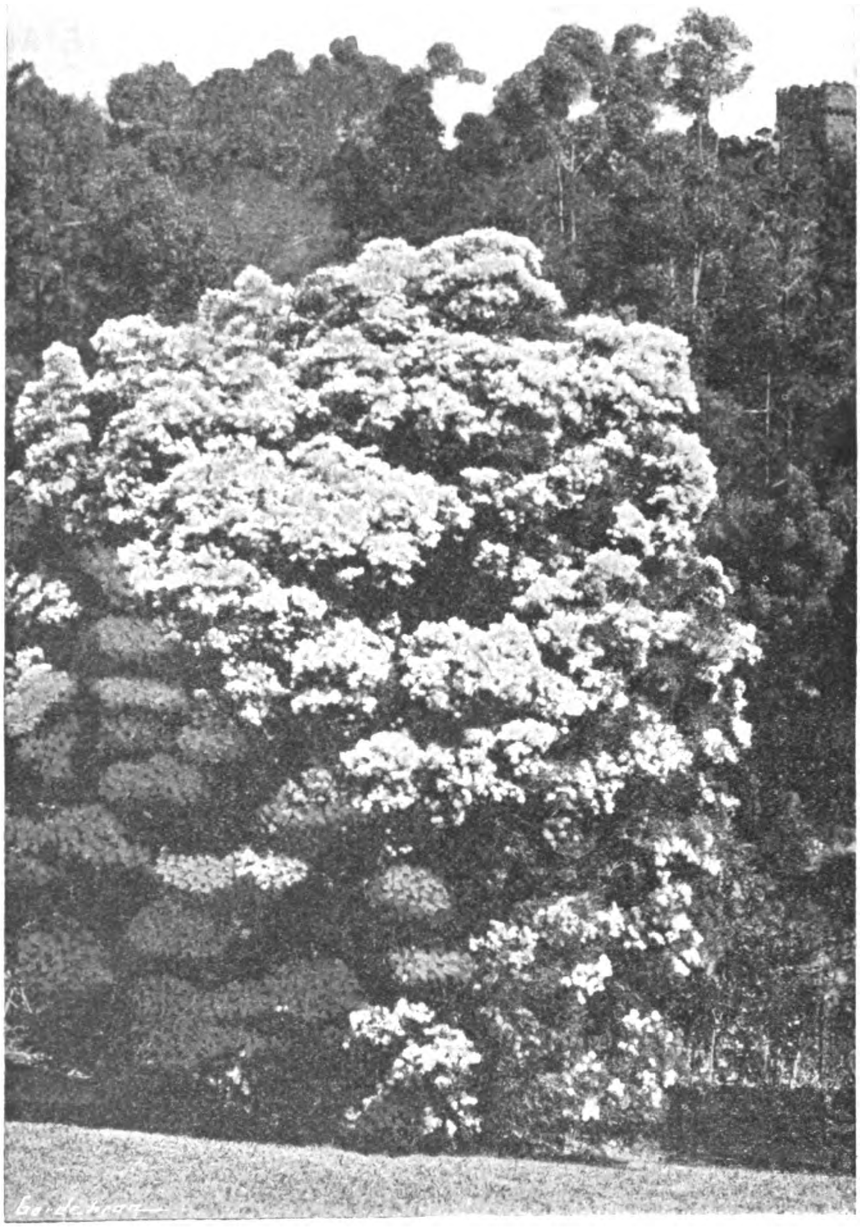

FIG. 156.—MELALEUCA GENISTIFOLIA IN MR. ALISTER CLARK'S GARDEN, BULLA, VICTORIA, AUSTRALIA.

Before leaving, Mr. Clark informed me that one of his best productions, Countess of Stradbroke, a semi-climber, or pillar Rose, brilliant red, large flowered, scented, with good foliage and long stem, is to be introduced in Britain and Australia by Messrs. Hazlewood Brothers, Epping, New South Wales. I was glad to hear this as it will give British growers an opportunity of trying out one of Mr. Clark's best results. Mr. Clark handed me a fine photograph (Fig. 156) of Melaleuca genistifolia which I enclose. *W. Cuthbertson, Wellington, N.Z., February 9, 1926.*

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CLASSICAL AND LEGENDARY GARDENS.

V.—Sukhâvatî and Buddhist Paradises.

WHILE the Persians had their Paradise, the Jews their Eden, the Greeks their Gardens of Hesperides, and the Romans their Gardens of Adonis, the Buddhists had also their Sukhâvati or Garden of Delights. The name is derived from the word *Sukha*, which covered the ideas of well-being, pleasure and happiness, what is agreeable and sweet; ultimately referred to the syllable *Su*, the equivalent of the Greek *eu*, which we have in such words as eugenics, euphony and eulogy.

In 1881, Professor Max Müller was on a visit to West Malvern in the company of two Buddhist priests from Japan. As they were returning one evening from a ramble along the ridge of the hills they stood still to watch one of those glorious sunsets so often to be seen from the Malvern range. The western sky, he states, was like a golden curtain, hiding, like that in the Temple at Jerusalem, some unimagined splendour or mystery, the abode of Deity. "This is what we call the Eastern Gate of Sukhâvatî, the Land of Bliss!" exclaimed Kasawara, one of the priests. He expressed himself as looking forward to admission through the gates of gold and meeting those he loved. There, too, he would gaze on the Buddha whose name is Amitâbha—the Infinite Light.

A lady who heard Max Muller describe this scene sent him the following lines:—

> "We walked and talked together, and before us
> The golden glory of the sunset shone.
> Then a great raptured silence brooded o'er us—
> The glory glowed with gems—The orb was gone.
> Then spoke my friend with reverent voice, and low,
> 'Yonder! the wondrous Garden's Eastern gate!
> Within' (he eager gazed) 'fain would I go;
> Beyond those shining bars my fathers wait.'"

I have replaced the word Temple by "Garden" because I do not think the term Sukhâvatî ever bears the former meaning. It is a Paradise, a Land of Bliss, the Abode of Delight, a Buddhist Eden. Writing to Mr. Nanjio, the other priest who was in his company at Malvern, Professor M. Müller says, under date July 23, 1882—"I shall hope to find time to publish the Sukhâvatî Vyûha before you return to Japan, but I want to publish it jointly with you, so as to have your name on the title-page with my own." And in November, 1883: "If we have finished the translation of the Sukhâvati (we must) take some rest." In his *Biographical Essays*, Max Muller has one on Bunyiu Nanjio, reprinted from *The Times* of March, 1884, from which we learn that he was a member of White Lotus School, some of whose members went to India to collect Sanskrit MSS. "Several of these, containing sacred texts of Buddhism, particularly descriptions of Sukhâvatî, or the Land of Bliss (the Paradise of the Buddhists), in which the believers in the Buddha Amitâbha hope to be born again, were translated from Sanskrit into Chinese. They form to the present day the sacred books of the White Lotus sect in China, Tibet and Japan. . . Of the Sukhâvatî Vyûha, 'The description of the Land of Bliss'—one of the principal sacred texts used in Japan, there are no fewer than twelve Chinese translations." These were very imperfect, and Nanjio, a man of most remarkable attainments, made, with Max Müller's aid, translations thereform into English. He was brimful of Buddhistic lore, and in a little poem which he wrote in Chinese, he states that he "an Eastern man thinks of and longs for India where grows the Tree of Knowledge" or "the famous Bodhi tree under which Sakyamuni obtained Buddhahood or perfect enlightenment."

The Gate of Sukhâvatî deserves a little fuller explanation. When Buddhism was introduced into the Japanese archipelago it was largely influenced by the fact that it came by way of China. Hence the native word for the Buddhist Paradise, Gokuraku, is traceable to Chinese, and so back to the Pali. But when the priest Kasawara spoke of the Eastern Gate of Sukhâvati, he had in mind a work which he knew under its Sanskrit title—Sukhâvatî Vyûha. From Sukha, an adjective, comes the word for Paradise, written Sukhâvati, while Vyûha means an army or host. The Buddhists, like the Hebrews, could speak of the hosts of heaven, and when the sun was setting in its splendour, the idea was that of the golden gates of Paradise thrown open to receive the faithful. Very interesting also it is to observe how the west becomes transformed into the east. Standing on the hills and looking towards the sunset one sees in imagination realms of mystery beyond the gates of gold. Those realms must therefore lie further west, and so the evening glow is the flashing of the glory through the eastern portals.

On turning to the second series of Professor Max Müller's *Last Essays*, we find a paragraph which makes clearer to us some of the points in the foregoing study, which may at first be hard to understand. Among the followers of Buddha are two schools known respectively as the Great Way and the Little Way—the Mahâyâna and the Hinayâna. The latter, following the Pali canon, deny a personal soul and a personal god. On the contrary, "the Mahâyâna admits a personal god, such as Amitâbha (Endless Light), residing in the Paradise of Sukhâvatî, and it evidently believes in the existence of personal souls." After death the souls enter into the calyx of a Lotus, the flower of immortality, and eventually, according to their merits, rise into the flower itself, where reclining on its petals, they listen to the preaching of the Law."

One recalls the words of Sir Edwin Arnold in *The Light of Asia*:—

> "The dew is on the Lotus! rise, great Sun!
> And lift my leaf, and mix me with the wave.
> Om mani padme hum! the sunrise comes!
> The dewdrop slips into the shining sea!"

Max Müller adopts the suggestion which had already been made "that the absence of any information as to the fate of the soul after death may have made the stories about the Paradise of Sukhâvatî particularly attractive, both to the followers of Confucius and to the originial Hinayâna Buddhists,"and so account for the repeated attempts to translate the Vyûha into Chinese. An English translation of the description of the Buddhist Paradise, Sukhâvatî, was published for the first time by Max Müller in volume XLIX of the *Sacred Books of the East*, to which reference will be made in my next article.

Naturally, the Buddhists made use of the legends and lore which already existed. They were familiar with the Paradise of Indra, for example, in which grew five trees, under the shadow of which the gods partook of the nectar which made them immortal. Quite a number of plants share this honour in Hindu mythology. Sometimes it is a Euphorbia, doubtless because this genus is famous for its milky juice. Another was a sugary plant (Saccharum) while a cereal, a Bean, a Pepper plant and numbers of fragrant herbs are also included in the list.

One of the most famous flowers in Hindu literature is the Champaka. The Brahmins, in some districts affirm that it flowers only in Paradise. "The strong aromatic scent of the gold-coloured *Campac*," Sir Wm. Jones considers, is thought to be offensive to the bees, who are never on its blossoms; but their elegant appearance on the black hair of the Indian women is mentioned by Rumphius; and both facts have supplied the Sanskrit poets with elegant allusions." The Champaka tree (Michelia Champaca) is sacred to the god Vishnu, and is held in the highest regard by the natives of India. Among the Buddhists, however, no flower is held in greater estimation than the Lotus. The Chinese grow it in the tanks connected with their temples, just as do the faithful in every other eastern land where the religion of Buddha is in vogue.

According to a map of the world which was found some years ago in northern India, the four rivers of Eden flowed through India, China, Siberia, and into the Caspian Sea respectively; the language used by the cartographer was Sanskrit; but the origin of the tradition is in doubt. For ages men have dreamed of Paradise under a variety of names, but who originated these legends we know not; nor can we at this date always exactly divine the underlying thought which they embody. It is only by patiently piecing together the different terms as they are brought to light, and striving to get into touch with the primitive mind, that we can hope eventually to see all the beauty and meaning which lie hidden in these lost Edens and unrecovered Paradises. *Hilderic Friend.*

THE GENUS MECONOPSIS.

(*Continued from p.* 253).

II.—Comments on Species.

THE following notes and comments on the better-known species in or out of cultivation may interest growers. The order followed is that given by Sir David Prain in his last monograph of the genus (*Kew Bulletin*, 1915), except where otherwise stated. But the genus again needs some revision.

Section EUMECONOPSIS: Plants with Simple Hairs or Prickles.

Cumminsia.

Defined as perennials with variously-cut, sparsely-hirsute leaves; four-petalled, purple or blue flowers; and a long, slender capsule in which dehiscence is not confined to the apex.

Meconopsis lyrata (originally Cathcartia lyrata) is a Sikkim plant with pale blue flowers. M. compta, with purplish flowers, is its Chinese representative. In the opinion of Mr. E. H. Evans, M. compta=M. lyrata, and should be reduced; an opinion which, after comparing the plants, and in view of what follows, I heartily endorse.

Neither plant is in cultivation, and they would not be referred to here were it not for a plant collected in Tibet, K.W. 6038, of which many seedlings have been raised.

This plant, in habit, foliage, capsule and root is clearly allied to the above; but it has yellow flowers and five to seven petals. A peculiarity is the variation in the leaf; in some specimens the leaf is entire, narrow, linear, in others, so deeply incised as to be pinnatisect. The distinction between M. compta and M. lyrata depends chiefly upon leaf incision, and is certainly not valid Again, Farrer found a plant on the north-east frontier of Burma, which has been referred to the Sikkim M. lyrata, so that it is extremely unlikely that M. compta is anything more.

These plants are said to be perennial, though there is nothing in the small, Radish-like root, common to them all, to suggest it, nor did I see any signs of it in my yellow-flowered plant. The legend of perennial youth was probably founded on M. betonicifolia alone, which, as we have seen, does not belong here. What, however, is of greater importance is this: M. lyrata is a high alpine, and. is not in the least likely to be hardy. K.W. 6,038 is a woodland plant from 10,000-11,000 feet, and will probably give no trouble; it is the only dwarf yellow-flowered species known. I did, indeed, find in the snow fruit of an alpine species of this aggregate, K.W. 6,259, and saved half a capsule full of seed from it. Beyond that I know nothing about it—not even whether the seeds have germinated. It is hardly likely to be the yellow-flowered, woodland species; probably it is M. lyrata.

M. BETONICIFOLIA, one of Delavay's plants, is also included here by Sir D. Prain. But M. betonicifolia is, as a matter of fact, covered with barbellate hairs, and has no business here; its rightful place is with the section Polychaetia, amongst the group Robustae, where M. superba, another closely allied species finds its place. Of that I shall have more to state presently.

Our amended group, Cumminsia, therefore, comprises M. lyrata, M. polygonoides (neither in cultivation) and M. Florindae, as I have named K.W. 6038. They are slender, almost glabrous herbs, not exceeding a foot, with narrow stem leaves, incised or almost entire; blue, purple, or yellow flowers; a small Radish-like root: and a long, narrow capsule, with a short style. The discovery of M. Florindae has added complications, and made the definition less precise; on the other hand the removal of M. betonicifolia has drawn the remaining members much closer together.

DECORAE.

The next group, Decorae, was founded by Sir David Prain on a species raised from seed sent by Major F. M. Bailey from the Abor Hill. I have not seen the living plant. and I do not know whether it is still in cultivation; nor did I come across anything like it in Tibet in 1924.

ACULEATAE.

Everybody knows the members of this group by sight; they are the familiar 'Blue Poppies' par excellence—the 'Kashmir blue Poppy' and others. There are three Chinese, three

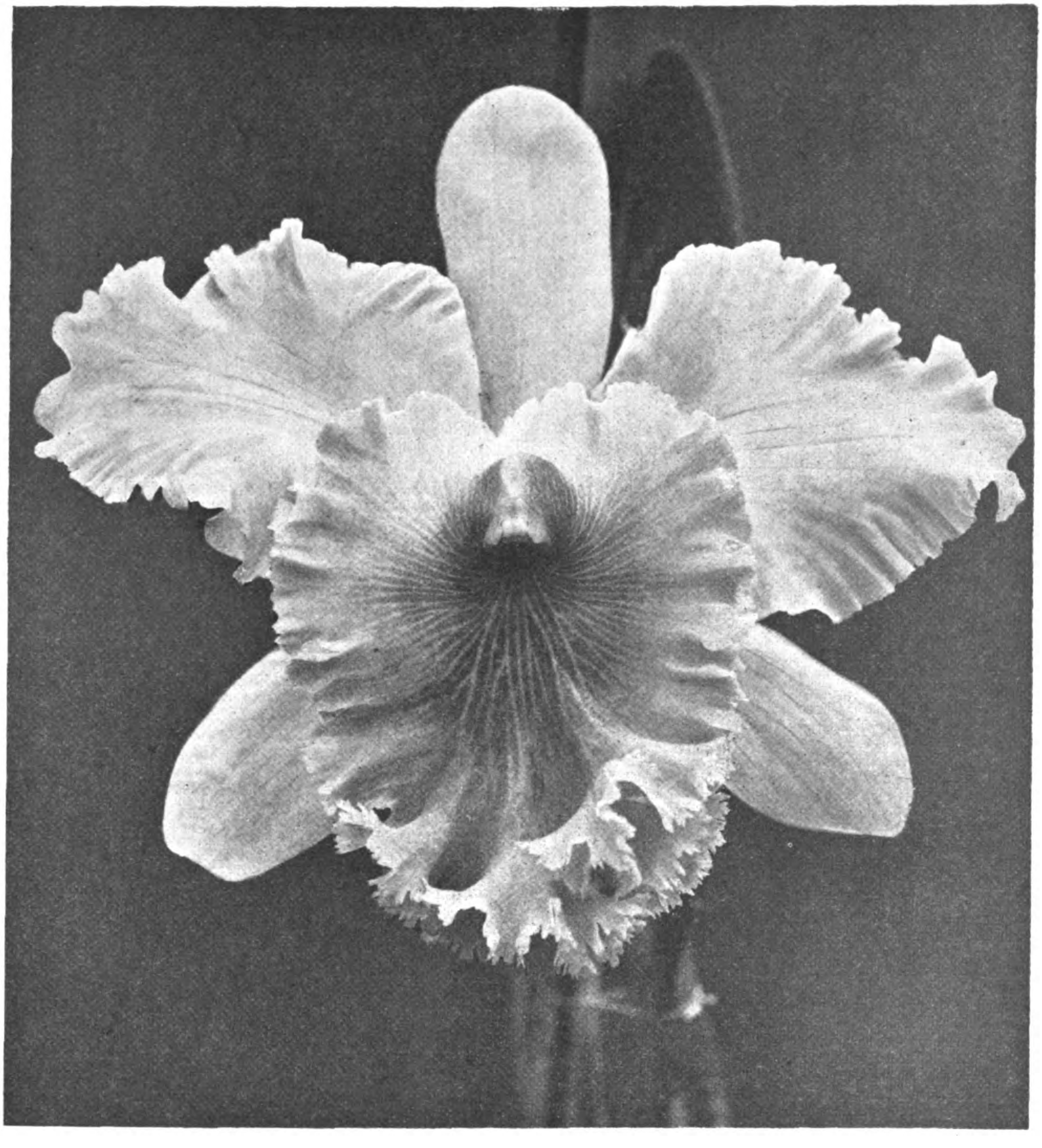

FIG. 157.—BRASSO-CATTLEYA MARY J. S. HANBURY.

R.H.S First Class Certificate, April 7. (see p 302.)

Himalayan and one Tibetan species: to these must now be added two new Tibetan species, K.W. 5,751 and K.W. 5,909, seeds of which have germinated well. Most of them are or have been in cultivation, or on the verge of it; but the only ones we need trouble ourselves about are M. latifolia and M. Prattii. Let me first, however, clear the ground a little.

The three Indian species are distinguished from the three Chinese plants by having only four petals as against six to eight; a distinction on which not too much reliance should be placed.

M. LATIFOLIA, a somewhat rare species, found in the Himalaya from Bhutan to Kashmir, is the finest of the lot; and though separated from its two nearest allies chiefly by foliage characters—and we know that the foliage of these plants varies considerably in the same species—no one would deny its right to specific rank. Besides, it has a purple instead of a green stigma.

M. latifolia has fragrant sky-blue flowers, and attaining a height of thirty to forty inches, is a noble plant. In Ireland and Scotland, at any rate, it comes from self-sown seed, and it has scattered itself over the rock garden at Edinburgh. It is figured in the *Botanical Magazine*, tab. 8,223, under the name M. sinuata, var. latifolia. M. SPECIOSA, a smaller plant, also having fragrant sky-blue flowers, may be regarded as its Chinese equivalent. It hovers on the fringes of cultivation—does indeed keep alive in the Edinburgh garden, yet it is as miserable and miffy as M. latifolia is magnificent and robust. Doubtless it will soon disappear, and the sooner the better.

M. ACULEATA, with rich, purple-blue flowers, not scented, is also in cultivation at Kew where it flowered so long ago as 1864, and is figured in the *Botanical Magazine*. tab. 5,456; but since then it has become rare in gardens. Dr. Royle thought it must be perennial by reason of its long, tapering, tap-root, but like the other 'Aculeatae,' it is only biennial. The distinction between M. latifolia and M. aculeata lies chiefly in the foliage; the leaves are lobed, or the margin wavy in M. latifolia, deeply toothed or pinnatisect in M. aculeata. Also the stigma of M. latifolia is purple, that of M. aculeata pale green; and the capsule of M. latifolia is narrow obconic, the flowers pale blue; in M. aculeata the capsule is nearly globular, the flowers deep blue shaded violet or purple.

M. PRATTII (of which M. rigidiuscula is only a variety from a drier locality) has been in cultivation some years and is a promising plant. The flower colour, which is normally bright blue, varies more freely than in most of the blue-flowered forms, and is not uncommonly dead white. At Edinburgh a striking form with almost claret-coloured flowers—very nearly the maroon-red of M. punicea, has been raised. It comes freely from self-sown seed. The ordinary form is figured in the *Botanical Magazine* tab. 8,619.

M. Prattii is distinguished from M. rudis by its grey or cream anthers—they are golden in M. rubis; and less surely by its colourless or straw-yellow prickles, instead of purple, as in M. rudis; a distinction which I do not find valid in the field. M. Prattii, too, may have prickles purple at the base, and Mr. Armitage-Moore tells me he has raised plants with purple prickles, others with colourless prickles, from seed of M. rudis.

M. RUDIS is in cultivation, but it is only a poor relation of M. Prattii.

M. HORRIDULA. This is one of those lofty alpines against which I uttered a word of warning. It is a remarkable plant bearing sometimes as many as thirty one-flowered basal scapes, the longest not above eight inches high, arranged in a sort of phalanx, the shortest in front the tallest behind, and the whole bristling with bayonet points. The shortest scapes may be only an inch or two high. Flowers sky-blue, dark blue or purple.

The variety known as M. RACEMOSA comes from lower altitudes, has dark, instead of light blue flowers, and in habit closely resembles M. Prattii.

Finally there are the two new Tibetan species already referred to.

M. PRAINIANA (K.W. 5,909) is a fine plant, as much as three feet high, with pale, watery blue flowers, scentless, having the soft texture of Japanese silk. It has four, rarely five, petals, and is thus related to the Himalayan set; we must look at M. aculeata, M. latifolia and M. sinuata for its affinity. But as a matter of fact that is as near as we can get; we cannot match it. Though it has the green stigma of M. aculeata, instead of latifolia's purple prong, its entire, narrow, linear leaves separate it from both. The very long style, too, easily distinguishes it from M. latifolia. From M. sinuata it differs not only in its foliage, but still more in its capsule, which is obovoid instead of obconic.

Unfortunately, it is a high altitude species, and may prove to be perverse with us—though M. latifolia also comes from a fairly high elevation and gives very little trouble.

I have suggested the name M. Prainiana for this plant in honour of Sir David Prain, who has devoted years of study to the genus and done much to popularise it amongst horticulturists.

M. CAWDORIANA (K.W. 5,751) is like a lovely edition of M. horridula, with sky blue, fragrant flowers; but it has only four petals, against six to eight in M. horridula, in that respect resembling the Indian species. Its habit is perfect horridula—the numerous basal, one-flowered scapes, longer or shorter, or a false stem composed of a number of agglutinated scapes; but the plant is distinctly less prickly, nor has M. horridula fragrant flowers.

M. Cawdoriana recalls M. aculeata in foliage, though that has broader leaves, more deeply incised, and is altogether a bigger plant; also it is not fragrant. *F. Kingdon Ward.*

(*To be continued*).

MESEMBRYANTHEMUM.

(*Continued from p.* 268).

7—ROODIA, N. E. BR

A SUCCULENT perennial, forming with age clumps with underground branches. Leaves 2 to each growth or 4 when a new growth is made, opposite, united at the base, erect, subterete or stoutly semiterete, flattened on the face, firm and smooth, not dotted. Flower solitary, terminal, pedunculate and bracteate; calyx produced above its union with the ovary into a distinct tube, 6-lobed above. Petals numerous, free, linear, arising from the top of the calyx-tube. Stamens very numerous, arising from the top of the calyx-tube and all abruptly bent down into the tube in a ring. Stigma sessile, small, circular, entire. Ovary inferior, 12-15-celled, slightly concave at the top; placentas on the outer wall or floor of the cells. Capsule broad and shallow, flat at the top, with 12-15 valves and cells; each valve with two brown, expanding keels half as long as itself, having membranous marginal wings and ending in membranous points; cells roofed with rather rigid cell-wings, and the outer opening nearly closed by a tubercle.—N. E. Brown in *Flowering Plants of S. Africa*, vol. 2, t. 78 (1922).

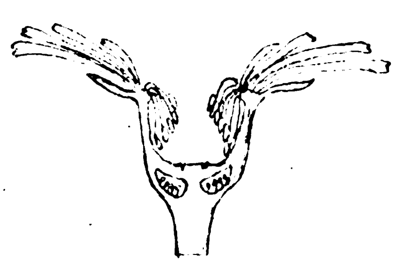

FIG. 158.—ROODIA DIGITIFOLIA.

Sectional diagram of flower-structure.

The only known species and type of the genus is R. digitifolia, N. E. Br., a native of Van Rhynsdorp Division in South Africa.

The genus is named after Mrs. E. Rood, who discovered this plant, which is well-figured in the work quoted: a diagram of the flower-structure in longitudinal section is here given slightly enlarged (Fig. 158).

R. digitifolia, N. E. Brown.—Plant forming somewhat lax clumps with underground branches 2-3 inches long when old. Leaves opposite, one pair to each growth (or under cultivation sometimes two pairs), erect, 2-4$\frac{1}{4}$ inches long and 5-7 lines thick, half-cylindric or subcylindric, but flattened on the inner face, obtuse, smooth, glabrous, green or suffused with purple at the tips. Peduncle 1-2$\frac{1}{2}$ inches long, erect, with a pair of bracts near the middle, glabrous. Calyx produced above the ovary into a tube 3-3$\frac{1}{2}$ lines long, 6-lobed above, and slightly constricted under the lobes, glabrous, green; lobes 2$\frac{1}{2}$-4 lines long and 2$\frac{1}{2}$-3$\frac{1}{2}$ lines broad, ovate, subacute or obtuse, four of them with membranous margins. Corolla about 1$\frac{1}{2}$-inch in diameter; petals in about 4 series, the outer about 7 lines long and $\frac{1}{2}$ line broad, the others gradually shorter, linear, obtuse or notched at the apex, bright magenta. Stamens, stigma and ovary as described under the genus. Capsule about 7 lines in diameter when closed and 12-13 lines in diameter when expanded, shallow, about 3 lines deep, very shortly and broadly obconic-convex beneath, flat, with 12-15 raised double ridges $\frac{1}{2}$ line high on the top, and with 12-15 valves and cells, light brown; valves narrow, 3 lines long, pale brown inside; expanding-keels diverging from their base, half as long as the valves, orange-brown, with a white membranous outer margin or wing continued into a linear, blunt appendage nearly as long as the valve that is often united to the appendage of the adjoining valve; cells radiating from a central boss 2-2$\frac{1}{2}$ lines in diameter, roofed with pale brown flexible cell-wings and the outer opening nearly closed by a large, white tubercle. Seeds numerous in each cell, about $\frac{1}{2}$ line long, ovoid, with a minute nipple at the narrow end, smooth, light brown.—N. E. Br. in *Flowering Plants of South Africa*, vol. 2, t. 78 (1922).

Van Rhynsdorp Division: Near Van Rhynsdorp, Mrs. E. Rood!

In the *Annals of the Bolus Herbarium*, vol. III, p. 165, Mrs. L. Bolus has stated that Roodia digitifolia is a synonym of Mesembryanthemum brevipes, Schlechter. I have not seen the latter plant, but feel sure that Mrs. Bolus is mistaken and am inclined to believe that this statement is based upon some superficial resemblance of the two plants rather than upon a careful comparison by dissecting them both. For, according to the description of it, M. brevipes differs from Roodia digitifolia by having 4-6 leaves to a growth, very short peduncles, and 6 subulate stigmas nearly 1$\frac{1}{2}$ line long, and therefore it would have only 6 cells to the ovary and capsule (which latter is not described), consequently it cannot even belong to the same genus as Roodia digitifolia. Until fresh material of M. brevipes, with good flowers and fruit is available for examination, its correct generic position cannot be determined. Among both annual and perennial species of this group there are several cases where the plants are so very similar in general appearance that they might easily be supposed to belong to the same genus or section, and in some cases have even been mistaken for the same species, yet when carefully dissected and examined are found to have such a totally different structure that they cannot be associated in the same genus! There are plants having the same type of growth as Roodia, which certainly do not belong to this genus, but I have not yet been able to obtain both flowers and fruit of them, so at present I am unable to deal with them in any way. Many of these plants can only be properly determined by dissection and an examination of their fruit, as I have found from experience that similarity in appearance is often no guide to real affinity. *N. E. Brown.*

(*To be continued.*)

PLANTS NEW OR NOTEWORTHY.

GLYPTOSTROBUS PENSILIS.

This appears to be the correct name, according to the Vienna "Rules," of the Swamp Cypress of China, a Conifer which is known only in cultivation, being restricted to two localities around Canton and Foochow in China. According to a paper read recently by Professor A. Henry at the Royal Irish Academy, this species has died out in the wild state, and, like Gingko, it has been preserved from extinction for religious motives.

The Chinese peasants plant it on the north side of their villages to bring luck to the family home, and amongst the Rice fields to increase the crop. The genus Glyptostrobus resembles Taxodium of North America in many respects. Both are adapted to wet, marshy situations, where they develop peculiar "knees" which are woody growths from the roots, projecting above the ground. The function of the knees is to enable the roots to breathe, whenever the soil happens to be inundated. The knees of Glyptostrobus, however, are peculiar in shape, not being erect, as in Taxodium distichum, but curved and bending over as in certain Mangroves. The genus Glyptostrobus is a very ancient type, and its fossil remains have been found throughout the Tertiary era, widely spread over the northern hemisphere in North America, Europe and Asia, extending so far north as Spitzbergen, Greenland and Alaska. Its twigs and leaves have been gathered in the Eocene beds at Ardtun in the Isle of Mull, in company with similar remains of two other genera, Gingko and Cryptomeria, all three being now represented in China by three living species, which can scarcely be distinguished from those that flourished at the beginning of the Tertiary era.

Professor A. Henry, who was assisted in the microscopical work and drawings by Mrs. Marion McIntyre, gave in his paper also a comparative account of the botanical characters of the American swamp Cypress, Taxodium. The paper, in addition, contains a study of the woods of the four genera, Glyptostrobus, Taxodium, Sequoia and Wellingtonia, and will prove valuable in identifying the species of trees which constitute the lignite beds in Europe and North America. Glyptostrobus is very rare in cultivation. The only tree now living in England out of doors is in the wonderful Pinetum of Nymans in Sussex. This specimen is about fifteen feet high, and is comparatively stunted in growth, as our climate is not warm enough for it to thrive. There was formerly a tree in Victoria Park at Bath, but it never seemed healthy, and died a few years ago. Another planted out at Killmacurragh in Wicklow also never throve and cannot now be found. The tree may be seen under glass in the Temperate House at Kew. According to a writer in *Gard. Chron.*, February 7, 1925, p. 92, this is "one of the most beautiful Conifers in cultivation; it is deciduous and casts most of its branchlets every year. Its beauty is due to its brilliant autumn tinting, for the leaves, in late summer, commence to change to a brilliant apricot, passing to crimson, and as the foliage is not entirely shed until January, it may be imagined how beautiful this plant is in autumn and early winter."

Most of the plants cultivated in the Temperate House at Kew succeed out-of-doors with very little protection, and this Conifer would doubtless flourish in the warmer parts of the country, such as Cornwall and the Isle of Wight. As a pot specimen for the conservatory and greenhouse it would be attractive in autumn and winter in view of the brilliant tinting of the foliage in those seasons.

Glyptostrobus was first discovered by Staunton who accompanied Lord Macartney's mission to China in 1793; and his specimens, which are preserved in the British Museum, were called Thuya pensilis by Lambert. Hence the name adopted above. The photographs of Glyptostrobus obtained recently by Professor Henry from China, will be the first to be published of this tree as it grows in its native habitat. *Communicated by Prof. A. Henry.*

THE CONTROL OF DAMPING OFF.

The various factors which influence the appearance, extent and spread of the various. diseases which come under this heading have been previously noted in these columns.

Quite apart from various preventive measures which may be classified under the heading of cultural conditions, the damping-off disease may be very effectively checked by the use of Cheshunt Compound. This specific had its origin in the Cheshunt Experimental Station, and was first recommended by the present Director, Dr. Bewley. It is composed of a mixture of sulphate of copper and carbonate of ammonia intimately ground together, and is now obtainable as a commercial commodity packed in special water and air-tight containers. It is used at the rate of one ounce dissolved in two gallons of water.

The writer has observed that this material appears to be an almost infallible remedy, and it is recommended for use on Tomato, Aster, Cabbage and Antirrhinum seedlings, and on Pelargonium and other cuttings.

Below is given an extract from Dr. Bewley's book on *Diseases of Glasshouse Plants*, which may be of interest to readers :—

Control.—Sterilisation of infected soil by steaming, baking, or with a two per cent. solution and formaldehyde (one gallon of commercial forty per cent. pure formaldehyde in forty-nine gallons of water) will completely rid it of the disease organisms before planting. Pots may be sterilised by boiling in water or by treatment with formaldehyde, while boxes are best sterilised with formaldehyde, as steam and hot water soon destroy the wood. Frequently the propagating soil becomes contaminated by a chance infection, which is not realised until the disease reaches the epidemic stage.

Plants may be watered with this solution (Cheshunt compound) without injury, while the "damping off" organisms in the soil are destroyed, but infected plants receive no benefit from the solution, for the fungus is already inside the tissues where the liquid cannot reach it, and such plants eventually die. The seed-boxes should be thoroughly watered with the solution after sowing and covering the seeds. When potting up, the seedlings should be watered first with the solution while still in the boxes, to ensure that the roots are thoroughly wetted, and after transplanting into the pots the solution should again be applied.

To enable sufficient solution to be given to each plant, the level of the soil should be one inch below the level of the pot. The solution may be used in the houses by adding a pint to each of the holes prepared for the plants. In replacing diseased individuals the method should be to remove the dead plant, water the hole with a pint of the solution, replant with a healthy individual, and again water with the solution. The compound has been successfully employed on commercial nurseries, and has a beneficial effect, apart from killing the disease organisms, for the nitrogen it contains imparts a greater vigour to the plants.

During an epidemic at one nursery the grower replanted two houses four times, and each time lost practically the whole of his plants. When replanting for the fifth time, the soil was treated with Cheshunt compound, with the result that only four plants were lost out of two thousand.

The disease may be aggravated by certain cultural conditions of moisture and temperature. Thus a relatively high percentage of moisture in the soil and the air is favourable to the disease organisms, and careful regulation of the watering, so as to keep the seed-boxes uniformly moist, combined with efficient ventilation of the propagating houses to dry out the surface soil, will help to keep the disease under control. The optimum temperature for growth of Phytophthora parasitica is about 30°C. (86°F), and that of P. cryptogea and Rhizoctonia solani about 25°C (77°F). Below 12°C. (54°F.) the growth of all three species is very slow. When the disease has started among the plants the grower should endeavour to keep the temperature as low as possible without impairing the health of the crop.

Diseased plants may be saved only by cutting away the lower diseased portion and treating the healthy tops as cuttings. *Theodore Parker.*

APIARY NOTES.

This is the busiest time of the year for the apiarist as it is also for the gardener, and, where the office is a combined one, there is a danger of something being left undone.

Food is the first requisite. Some bee-keepers advocate stimulative feeding in the spring. There is only one time to feed bees, and that is in the autumn. Done properly—forty to fifty pounds of stores in each hive—and the bees want nothing more stimulating. They will not waste a grain of it, but give it back in filled sections later. Never extract from the brood chamber. If about the middle of this month bees require more room simply put another body on top. But if, through error, there is insufficient food, make sure to supply the need at once. Slabs of sealed honey are best, syrup (one pound of sugar to half-pint of water) is next. Supply it warm, at night: use a large feeder, and give ten pounds at once. Throw away all 'slow' feeders and toys—let the bees have the whole amount in one dose. They will consume it in a night. A closed tin, with holes punched in the bottom, is as good a feeder as any. A "slow" feeder is slow torture.

Examine the combs as these have a great deal to do with swarming, and, for that reason, with the crop. Drone comb is what the bee-keeper dreads. It is far better to throw away half the combs than have combs half-filled with drone cells. The queen cannot resist laying in them, the bees are given hordes of non-producers to rear, and, whilst we do not know enough to be dogmatic, there is a fairly strong case made out to prove that many drones induce swarming. They certainly eat honey and gather none. Remove all combs with many drone cells in them, and give full sheets of foundation instead—putting these always at the outside of the brood-nest.

Here, again, some bee-keepers advise the spread of the brood. This is a mistake. Keep the brood-nest compact. The bees will expand it when ready, and, given a good queen, they will do so as quickly as they can. A sheet of foundation between the brood will encourage the formation of queen cells, on one side of it or the other, and that means swarms. In the same way, when giving a second body, it is sound practice to raise some of the brood upstairs, but always put it right above the brood below.

Never let the bees feel cramped. Any queen worth keeping is capable of using twenty-four standard combs for brood raising. Remember it is the multitude of bees in the hive when the honey flow begins that decides how much honey will be gathered. From now until three weeks before the Clover blooms keep the queen busy on twenty-four combs, and not one less. Apply the second body so soon as there is brood on eight frames.

Finally, during April and onward, see that bees have ample ventilation below, and none above. I have just been visiting bee-keepers in Italy, and in one yard I saw a most interesting and educative sight. Against a wall hung a score or more thick sections of hollow tree trunks, about four feet long. I asked what they were, and the owner lifted down one after the other to show me. In each was a stock of bees on natural combs. The top of each branch was solid but the bottom was completely open to the air. The snow lay a foot deep everywhere, and it was as cold as an English mid-winter. Yet high up against the solid roof of each log hung the cluster of bees, beneath them no protection from the outer atmosphere. They were in fine order.

Our hives should imitate those logs. Have wide-open door, the full width of the hive, but an air-tight cover above the frames. Nothing will conduce more to brood-rearing, nothing send the bees into the sections quicker, and, if there is plenty of room, nothing will better discourage swarming. *J. Mavie.*

VEGETABLE GARDEN.

LETTUCES FOR ALL SEASONS.

The Lettuce is one of the most important of the salad crops, and it is possible to maintain a supply all the year round. Although this is not possible without the aid of protection of some kind, it is surprising how long the season may be prolonged in some parts of the country without the aid of any protective agency. Fully-matured Lettuces may be had for six months of the year from seeds sown in the open. Probably this would be possible in many more parts if the correct procedure were adopted and the most suitable varieties selected.

The greatest demand for Lettuces is during the spring and summer, but in some establishments they are needed over the greater part of the year; at the period when they are difficult to obtain in first-class condition, Endive very ably fills the breach.

Years ago, it was usual to classify Lettuces into two main groups, namely, Cabbage and Cos types. Under a late classification they are divided into four sections: (1) cutting or bunching; (2) Cabbage; (3) semi-Cos and, (4) Cos. The first group does not form closed hearts, the leaves being picked when large enough for salad purposes. These Lettuces are seldom grown in England, but find favour in America. Most of the Cabbage Lettuces are of a soft, buttery texture, but a certain proportion have leaves of a crisp nature, although the crispness is not so pronounced as that of the Cos varieties.

The semi-Cos Lettuces form hearts somewhat intermediate in shape between the Cabbage and Cos varieties; they resemble the latter in form (except in being much smaller and more compact in habit) and the buttery forms of Cabbage Lettuces in texture. Cos varieties are divided into two groups, those making compact hearts which do not require tying, these being known as self-folding. The other section is of a loose nature and the plants require tying when nearly fully developed to cause them to heart properly. The former type is very desirable for private gardens where a strand of raffia is not considered a necessary adjunct for a Cos Lettuce. For market growers this is not such an advantage as may at first be thought, as even self-folding varieties are tied before being sent to market. There is one advantage even in this case in that the self-folding kinds are tied easier, and this may often be done in the packing sheds.

There are very many different varieties of Lettuces, but, as in the case of many other vegetables there are more names than actual varieties. Still it would surprise many gardeners who have not the facilities to grow or inspect very many sorts to see a full collection growing together, such as at Wisley, when a trial of Lettuces is in progress. Also to see the many differences between the varieties, such as regards shape, form, colouring, size and texture of the leaves. From a casual glance two varieties would appear to be identical when seen growing, yet one may be a black-seeded variety and the other white-seeded. No less important is the difference in time taken to reach maturity, and the period the heads remain fit for use. Also the effect of prolonged drought on the summer Lettuces and the influence of excessive rainfall and frosts on the winter crops. Not all varieties are suitable for the same purpose, some being good only for autumn sowing, others for forcing, yet some are equally suitable for both summer and winter crops; one or two of the best forcing varieties are useless for growing out-of-doors.

A few years ago Cos varieties were the most popular with the public, owing to their leaves being more crisp and juicy than those of the Cabbage varieties, which were seldom asked for when the former were put on the market, the Cabbage varieties being available first. There is a growing tendency at the present time to favour the Cabbage group, which now includes a fair number of crisp varieties. Cabbage Lettuces possess several advantages over Cos Lettuces; they may be produced much earlier and consequently do not occupy the land so long, which is a great consideration for the market grower. On the whole, they are not so likely to run to seed so quickly, therefore they may be grown to perfection on dry soils and in dry localities; also they do not need tying.

The season may roughly be divided into three groups, the order of their reaching maturity being as follows:—(1) forced and forwarded Lettuces; (2) those sown in autumn and grown entirely in the open; (3) summer and autumn Lettuces.

Apart from being an easy crop to grow, Lettuces are especially adaptable as a catch or intercrop, quick to mature in comparison with the general run of vegetable crops. The best Lettuces are produced on light, sandy loams which have been deeply cultivated and well enriched with manure, especially for the summer crops, which depend on a quick growth to bring them to perfection. The manure should not be buried too deeply in this instance. The soil at Wisley is of an ideal nature for Lettuces, as evidenced by the trials of this crop in the past. Too great stress cannot be laid on the necessity of constant hoeing for the well-being of this crop. In order that the plants may withstand the winter in the open ground it is essential that the site should be well-drained, and the soil on the light side. An open situation is most important; ground that is slightly elevated and free from anything in the nature of shade is ideal. The soil need not be very rich, for robust, non-sappy growth withstands the winter best. Winter Lettuces do quite well at Wisley even on a north-east slope. In some districts slugs and larks are very troublesome to this crop.

The following is a list of the most desirable varieties for each purpose, from the results of the trials conducted at Wisley during the past few years, commencing with the earliest supplies, viz., forced Lettuces followed by those grown in cold frames. The trial of forcing Lettuces in 1924-25 was grown in a Melon-house one hundred feet in length, the beds on each side being three feet wide. The soil was composed of moderately rich, old potting compost mixed with a liberal sprinkling of chalk. The seeds were sown in a cold frame on September 30, and the seedlings pricked out into boxes. When established the plants were given an abundance of air, and subsequently planted in the beds in the Melon house on November 20. After a few days of close treatment they were subjected to cooler conditions, merely excluding frost, until the middle of January when temperatures of 45° by night and 50° by day were maintained; a fortnight later these temperatures were raised 5°.

The soil was in a moist condition at the time of planting, so that watering was not necessary (or desirable) for some considerable time, in fact, not until the middle of January. Mildew and Botrytis are the two chief diseases that affect Lettuces grown under glass. In the case of mildew careful attention to ventilation and light dustings of green sulphur during the early stages of growth will do much towards keeping the malady in check. The weather conditions will have a great bearing on the spread of this disease, dull, wet periods favouring its development. Certain varieties seem more susceptible to mildew than others, and, unfortunately, the small, tight-hearting Lettuces, which are so suitable for forcing, are generally attacked.

In respect to Botrytis or "damping off," as it is sometimes called, a perfectly healthy plant may suddenly wilt, and on inspection it will be found that the stem is rotten at the soil level. This is liable to happen at any period from about December until the plant is ready to cut.

It is not advisable to use old potting compost in which plants have been growing that are known to be subject to this same disease. After the plants were subjected to warmer conditions growth was very rapid, and water was given freely, the earliest varieties being fit to cut soon after the middle of February. These were a small proportion of the 116 stocks represented in the trials, which was composed of 103 Cabbage and thirteen Cos and semi-Cos varieties.

Many sorts were unsuitable for forcing either from their being so late in maturing or making large, coarse heads. For trial purposes the distance apart must necessarily be the same, but for ordinary purposes this should be governed by the individual variety. A point emphasised in the trial was the advantage of the smaller types which are nearly all heart with very few outer leaves, making it possible to grow a greater number of plants on a given area than is the case with the larger forms. Varieties such as Tom Thumb and Commodore Nutt only required a space of three inches to four inches square. Where only a small quantity is required Tom Thumb is frequently grown in shallow boxes, which have the advantage of being easily moved from one structure to another or stood on shelves in fruit houses. The trial proved that some of the well-known varieties are still the best, these being Golden Ball Forcing (grown under several different names), Tom Thumb and Early French Frame, the last being known on the continent as Gotte-a-Graine Noire.

Another variety worthy of mention is Early Paris Market Forcing, which closely resembles Early French Frame. Of the newer varieties the best was of Dutch origin, namely, Primus Nunhem, which also appeared under the names of Hothouse Premier and Primus. This variety was very quick in forming hearts, but is rather pale in colour; although good for forcing it is not suitable for outdoor cultivation. Another Dutch variety chosen by the Committee for an award is Böttner's Forcing, another name being Dutch Forcing, a rather tall form of Cabbage Lettuce closely resembling a semi-Cos variety; it was one of the earliest to mature.

Of the section representing the Cos and semi-Cos, Winter Density was the best, this being a semi-Cos; it was ready for cutting in the middle of March, and remained in good condition for a considerable period. A detailed account of the trial is given in *Gard. Chron.*, vol. LXXVII, page 171. *J. Wilson.*

(*To be continued*).

FRUIT REGISTER.

PEACH STIRLING CASTLE.

This hardy-constitutioned Peach is most dependable both for cropping under glass and in the open. I have grown it for many years and it has never failed to produce good crops of fine, luscious Peaches annually. The fruits are somewhat round, well-coloured and large in size on healthy trees that have not been cropped excessively. It is also a good Peach to send by rail, when gathered and packed carefully a trifle under ripe, as Peaches should be picked.

Young trees which have been planted late in the season will need every possible care and attention until they have become well-established. If the soil is dry water it and place a light mulch of decayed manure over the roots.

The training of young trees requires to be done with great care until an evenly-balanced head is formed, and this work should not be entrusted to an unskilled hand. Fan-shaped trees are the best for planting, and the grower should aim at keeping the whole of the wall space well-furnished with young, firm growths. All Peach trees have flowered well this year and the promise of a good crop of this variety is most encouraging. If the weather is mild, disbudding of the shoots may be commenced but the amount of young growth removed at one operation should be very light at this early period. It is always safer and better for the trees and future crops to disbud at intervals. On the first occasion only a few growths should be removed where they are very thick.

If aphis make its appearance, which it usually does when the nights are cold, it needs to be checked at once, as the spread of this pest is most detrimental to the new growths. The closest attention should be given to encourage early, healthy, free growth, as on this depends success in Peach-growing more than on any other cultural detail. *H. Markham, Wrotham Park Gardens, Barnet.*

PEAR JOSEPHINE DE MALINES.

We have heard many noted fruit growers express the opinion that for cropping, hardiness and general good qualities this variety of Pear (Fig. 159) is unsurpassed amongst the late dessert varieties. It is in season from the end of December until February or even later; Bunyard in *A Handbook of Hardy Fruits*, states that it is quite the most reliable fruit of its season, and if only one winter Pear can be grown, this variety should be selected.

The fruits are piriform, sometimes inclined to roundish, and when ripe the skin is pale yellow with a russet patch around the stem, and a tinge of red on the side next to the sun. The flesh is melting, juicy and richly flavoured, with a delicious perfume.

One advantage of this Pear is that, unlike many other varieties, the fruits do not all ripen within a few days of each other but over a long period in the fruit room. Fruits of excellent quality of this Pear are produced on wall trees. The variety was raised by Major Esperen of Malines, and the Josephine of Malines from which it takes its name was Major Esperen's wife.

PUBLIC PARKS AND GARDENS.

Solihull Urban District Council is considering a recommendation from Solihull Parish Council to purchase nine acres of land at Hasluck's Green Lane, Shirley, for a recreation gorund.

Yeadon Urban District Council is purchasing, for the sum of £2,400, the Yeadon Moor Dam and surrounding land for a pleasure park.

The parish meeting at Ibstock has agreed to raise £1,000 by means of a loan towards the Miners' Welfare Scheme of Recreation Grounds for the parish, which are to cost £4,500.

The Urban District Council of Larne has accepted a gift of land in the centre of a rapidly developing district for a public park.

Dewsbury Town Council has decided, subject to the approval of the Ministry of Health, to provide recreation grounds at Eastborough, the Flatts and Shaw Cross.

Halifax Corporation Parks Committee has been authorised to prepare a scheme for the provision of bowling greens, tennis courts and recreation grounds in various parts of the borough.

The Ministry of Health has sanctioned the purchase of land on Hove front at a cost of £5,000 for a pleasure ground.

The Ministry of Health recently held an enquiry into an application made by Blackpool Corporation for sanction to borrow £67,757 for further works in connection with the laying-out of the public park at Newton Drive, and £22,431 for the purchase of land at North Shore for a sports ground.

Application has been made to the Ministry of Health by Cheltenham Town Council for sanction to borrow £14,517 for the diversion of the River Chelt, and the laying out of adjoining land as a recreation ground.

Streatham Grove Estate, a rural retreat near Streatham Common, has been acquired as a public open space, the sum of £16,000 having been subscribed by public bodies and private individuals for the purpose. It was at one time feared that nothing could save the estate from the speculative builder, and local residents are greatly relieved that this lovely spot, the haunt of many wild birds, now rare, so near the heart of London will be preserved. There are numbers of rabbits in the grounds, and even pheasants and partridges are occasionally to be seen there.

HOME CORRESPONDENCE.

The Starling Danger.—When the damage caused by starlings becomes so great to trees over large areas, as reported by Mr. A. D. Webster in *The Gardeners' Chronicle* of April 3, it is necessary to make every effort to decrease the number of the birds. Shooting, as has been pointed out, is of little use, and one can well understand this. The very fact that the birds are frightened to a distance after a few shots have been fired shows the ineffectiveness of this method of dealing with the pests. A method which has been tried in our orchards, on a much smaller scale, it is true, for such birds as bullfinches, might possibly be of use. A very systematic search is made during the nesting season for nests of birds definitely harmful to fruit, and which at the same time have no compensating attributes, such as the destructiom of insect pests. When found, the position of the nests is marked, and when the full number of eggs have been laid these are taken away. Needless to say, this method is not adopted in the case of birds which have even a single redeeming point in their character, but only for those which are altogether harmful. Starlings certainly build in positions which are rather difficult to reach, but this should not prove an insurmountable difficulty. On the other hand, even by casual watching it is a fairly simple matter to locate the position of the nests of these birds, and if careful observation is kept from the beginning of the nesting season, it should be a matter of little difficulty to destroy many hundreds, if not thousands of eggs during this period. The effect of such destruction would not be felt for a time, but if persisted in and carried out with thoroughness, a very marked difference in the number of these birds would be noticed in the course of a year or two, and after a time it should be quite possible to reduce the quantity of starlings to a number well within control, and to such an extent that no further damage would result from the foulings of the birds. The success of this method depends upon whether the starlings make the plantations mentioned their home during the nesting season. The habits of starlings are such that the plantations in question might be the roosting place from the autumn onwards of the flocks which are causing the nuisance. The difficulty in this case is certainly increased, but success has been obtained in similar circumstances, and the difficulty should not prove insurmountable. In one instance a watch was kept every evening from the time the starlings made their first appearance, and as they were settling down for the night the gun was brought into use. Although it was necessary to continue the watch for some time, the fact that the starlings were frightened every night from their roosting place was in the end too much for them, and they left the place altogether after a time. *J. W. Morton, March.*

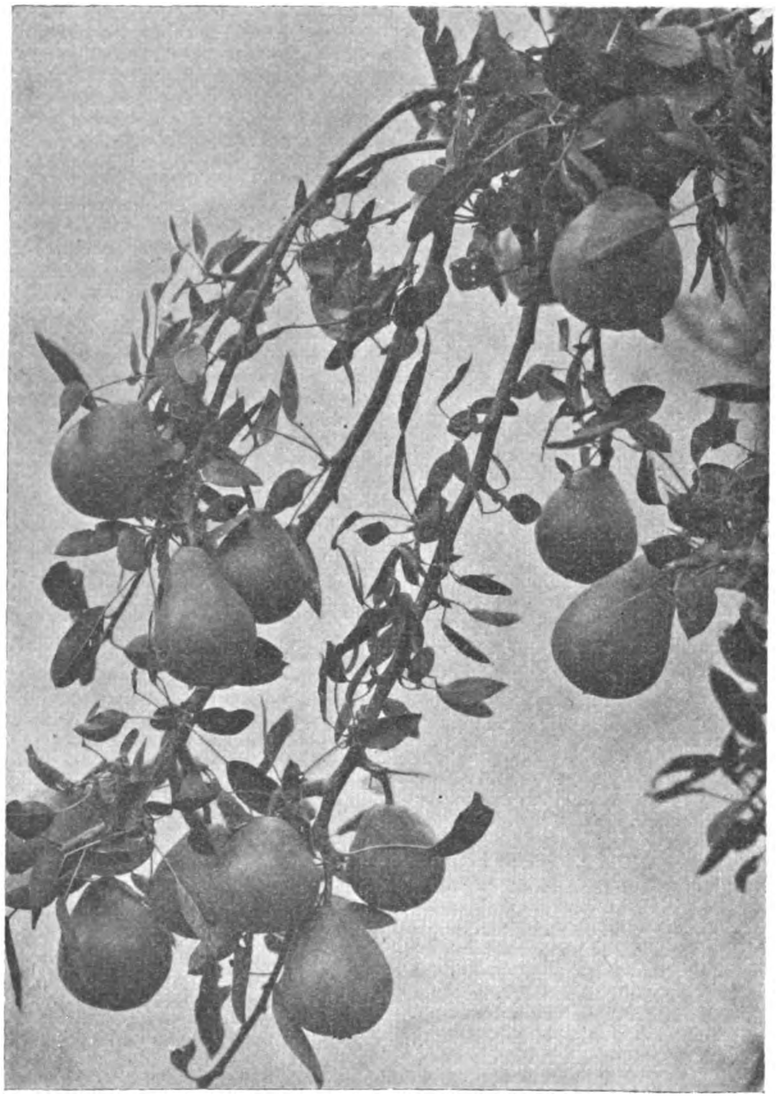

FIG. 159.—PEAR JOSEPHINE DE MALINES.

SOCIETIES.

BRITISH CARNATION.

April 15.—The thirty-first show of the British Carnation Society, which concerns tself with the perpetual-flowering varieties, was held at the R.H.S. Hall on the above date. Entries were above the average, and the general quality of the blooms was probably higher than at any previous show. There were five novelties before the Committee but, exercising a wise discretion, they made no award. The best and most distinct of the new seedlings was Brenda, a Fancy variety which in type and form rather suggests Shot Silk relationship. The flower is of good size and shape and of a pleasing crimson-maroon colour, lightly flaked with narrow bars of scarlet. The accompanying plants indicated a robust, free-flowering habit. Brenda was shown by Mr. E. ENGELMANN.

Open Classes.

Mr. C. ENGELMANN was the principal first prize winner in the classes open to all members. His seven vases of twenty-five blooms each of distinct varieties were admirable from every point of view. The chief varieties were Laddie, Cupid, Improved Ward, White Enchantress and Mary Allwood. He was awarded both the first and the second prizes in the classes for British and American novelties, though while the show regulations permit an exhibitor to show more than one exhibit in a class, he is allowed to take only one prize. His British novelties were Carola Striata, a crimson Fancy with scarlet flakes; Janet, cerise, and Dainty apricot Fancy; while the American novelties were Spectrum, scarlet; Surprise, salmon-pink; and Donald, crimson. In the class for twenty-five blooms of a British-raised variety, not in commerce, Mr. ENGELMANN had a handsome vase of Katja, a large and well-formed deep heliotrope coloured variety; while Mr. W. H. PAGE was second with the beautiful rose-coloured Edward Page.

There were four exhibits of twenty-five blooms of any crimson variety "scent to be taken into consideration." Mr. C. ENGELMANN was first with his new variety Dorcas, a large, shapely bloom of delicious fragrance. Topsy was shown by most of the other competitors.

The exhibits of not more than a hundred blooms of any one variety were displayed in tall glass vases disposed along the middle of the tables of dwarfer exhibits, where they added to the general effect to a marked degree. Mr. ENGELMANN had several exhibits, and his vase of Laddie won the first prize. Vesta, scarlet-cerise, was also very effective. Mrs. WALTER BURNS (gr. Mr. George Wright), North Mymms Park, Hatfield, was second with a good pink variety. Mr. ENGELMANN had beautiful blooms of Circe, Saffron, Topsy, Laddie and White Wonder in his first prize vase of fifty blooms in not fewer than three varieties. Mr. ENGELMANN's first prize exhibit of three vases of twenty-five blooms each included a vase of the glowing scarlet-cerise Spectrum, while Mr. W. H. PAGE had the beautiful Saffron in his second prize collection.

To test the keeping qualities of Carnations there was a class for a box of twenty-four blooms of a variety to be posted on the Monday, opened at the Hall and placed in water on Wednesday and judged on Thursday morning There were eight exhibits, and when the show opened all seemed to be quite fresh and good. Mr. ENGELMANN was placed first with magnificent blooms of Laddie. Other varieties included Lady Northcliffe, Starler and Wivelsfield Apricot. Competition was also keen in the class for two boxes of Carnation blooms packed as for market. Messrs. ALLWOOD BROS. were first with a box of Wivelsfield Apricot, and the blush salmon George Allwood; Mr. W. H. PAGE was second and Mr. C. ENGELMANN was third.

The Colour Classes brought some excellent exhibits. White Pearl, which figured in the first and second prize exhibits of Mr. C. ENGELMANN and Messrs. ALLWOOD BROS. respectively was excellent. The best light rose or deep pink variety was Master Michael Stoop, shown by Messrs. ALLWOOD BROS, while Mr. ENGLEMANN was second with the Marchioness of Salisbury. Miss PIXLEY, Wooburn House, Wooburn Green, Bucks., had splendidly coloured blooms of Laddie, the best salmon-pink, and Mr. ENGELMANN was second with the same variety. Mr. ENGELMANN was placed first with Tarzan and second with Spectrum in the class for red varieties. Topsy was the favourite crimson, and was shown by Mr. C. ENGELMANN and by Mr. H. T. MASON, who were first and second in the order named. Mrs. Hamilton Fellowes, shown by Mr. C. ENGELMANN was the best purple. In the class for yellows or yellow-ground Fancies, Mr. ENGELMANN was first with Saffron and second with Citron, a fascinating Fancy. The best Fancy with white, pink, mauve or violet ground was Chintz, shown by Messrs. ALLWOOD BROS.; Benora, shown by Mr. C. ENGELMANN, was second. These exhibits were similarly placed in the class for a vase of twelve blooms representing the twelve colour sections, while Mr. ENGELMANN, showing Orange Sunstar, Saffron, Jazz, and Maria Willson, was first in the class for twenty-five blooms of apricot or yellow Carnations.

Amateurs' Classes.

Many excellent blooms were staged in the Amateurs' Section, and the decorative exhibits were especially well-arranged. The only group of plants was a magnificent display by Sir CHARLES NALL-CAIN, Bt. (gr. Mr. T. Pateman), Brocket Hall, Hatfield, who had perfectly-grown plants of Carola, Saffron, Topsy, Laddie and other valuable sorts. Competition was very keen in the class for a decorative arrangement on a table space; the four exhibitors arranged especially good blooms very skilfully. The first prize was won by E. MARTIN SMITH, Esq. (gr. Mr. G. T. Miller), Codicote Lodge, Welwyn, Herts., with an admirable table of very high class blooms. In the centre he had a fine bowl of Tarzan, raised above equally desirable vases of Scarlet Carola, Saffron, Carola and Baroness de Brienen. Sir RANDOLF BAKER, Bt., Ranston, Blandford, who was second, had a charming centre basket of Laddie raised above vases of Crystal White, Saffron, Topsy and Spectrum.

Mrs. WALTER HYDE, Kempton Park, Sunbury-on-Thames, won the first prize with a splendid vase of Messrs. Stuart Low and Co.'s novelties. LADY MOND, D.B.E. (gr. Mr. W. Petty), Melchet Court, Romsey, had a magnificent vase of seedlings raised by the exhibitor, which included Melchet Beauty, a very fragrant heliotrope Fancy, flaked with scarlet. Mr. ERNEST W. BISHOP, Windsor, was second. The best decorative vase of not more than twenty-five blooms of two or more varieties was an excellent arrangement of Crystal White and Laddie, shown by S. T. HORE, Esq. (gr. Mr. J. Humphrey), Wonham Hill, Bletchworth. E. MARTIN SMITH, Esq., was a good second.

In the Colour Classes first prizes were won by LADY BRODIE HENDERSON, Epping House, Hertford, with R. F. Felton, light rose or deep pink; S. T. HORE, Esq., with Crystal White; E. MARTIN SMITH, Esq., with Baroness de Brienen, salmon-pink—though Laddie was shown by most exhibitors—Sir RANDOLF BAKER, for a Fancy, with Tarzan, red; LADY MOND, with Mary Pearson, purple on mauve; and by Sir CHARLES NALL-CAIN, Bt., with magnificent blooms of Topsy, crimson, and Saffron, yellow. The best vase of twenty-four varieties was an admirable exhibit by Sir RANDOLF BAKER.

Very thoughtfully the Committee had provided four classes for exhibitors who were personally unable to attend and arrange their exhibits, and in these JOHN HANMER, Esq., Pinewood Towers, Conway, won one first prize, and ERNEST WALKER, Esq., Radcliffe-on-Trent, won the remainder, both sending very creditable blooms In a similar class in section C., Mr. WALTER HYDE was first.

The four decorated dinner table exhibits were very good indeed, and Mrs. B. SWANN, Colwood Lodge, Warninglid, Haywards Heath, was first with a charming table of Carnations of orange and apricot shades, with Adiantum Fern and twisted Croton leaves, and Mr. R. H. HALL, The Gardens, Hatfield House, Hatfield, was second with a handsome table of Laddie and Asparagus plumosus.

Excellent non-competitive groups of Carnations were arranged by Mr. C. ENGELMANN, Messrs. ALLWOOD BROS., Messrs. KEITH LUXFORD AND Co., and Messrs. STUART LOW AND Co., while Mr. JOHN PINCHES had a selection of his admirmirable metal labels. Messrs. ALLWOOD BROS. showed Carnation sundries, and there were several exhibits left over from the previous R.H.S. meeting.

ROYAL HORTICULTURAL

April 20 and 21.—The exhibition held on these dates was remarkable for several particularly fine displays, and for a visit made by Princess Mary, Viscountess Lascelles, early on the Tuesday. Her Royal Highness was escorted round the show by Lord Lambourne, Sir George Holford, and Mr. Simmonds, the Assistant Secretary; she stayed for a long time and greatly admired many of the groups.

Novelties were numerous and large numbers of awards were made. Unfortunately insufficient space was reserved for the new plants and it was difficult for many visitors to see either the names of the plants or of the exhibitors.

The great feature of the Show was the superb exhibit of magnificent Hippeastrums from SIR GEORGE HOLFORD, every plant raised at Westonbirt. The HON. VICARY GIBBS' rock garden was another large effort from a private establishment while a notable trade display was the one of splendidly grown plants of a fine strain of Schizanthuses from Messrs. DOBBIE AND Co.

Orchid Committee.

Present: Sir Jeremiah Colman, Bt. (in the Chair), Mr. Gurney Wilson (Hon. Sec.), Mr. R. Brooman White, Mr. C. J. Lucas, Mr. Fred J. Hanbury, Mr. H. T. Pitt, Mr. Arthur Dye, Mr. C. Cookson, Mr. H. G. Alexander, Mr. J. E. Shill, Mr. H. H. Smith, Mr. A. McBean, Mr. T. Armstrong, Mr. R. G. Thwaites, Mr. J. Wilson Potter, and Mr. Chas. H. Curtis.

First-Class Certificate.

Coelogyne Lawrenceana var. superba.—A very fine form of a species described in *The Gardeners' Chronicle* of April 15, 1905, and figured in our issue of May 21, 1910. It was found by Micholitz when collecting in Annam, and one of the first plants to flower in this country was shown by Sir TREVOR LAWRENCE at a meeting of the Royal Horticultural Society held on March 28, 1905, when an Award of Merit was granted. The variety superba has larger flowers than the type and wider petals. The latter and the sepals are greenish with a faint tinge of yellow. The big, handsome lip has a wide front that is pure white except for a central band of creamy white, but the larger part of the labellum is yellow or yellow-brown, and on this area there are raised, fimbriated, keel-like lines of deep red-brown. Altogether a very handsome Orchid. Shown by Messrs. SANDERS, St. Albans.

Groups.

There were very few exhibits before the Committee on this occasion; only two plants were submitted for awards and only one group.

The group was arranged in the annexe by Messrs. CHARLESWORTH AND Co., Haywards Heath who made a feature of Miltonias, showing the handsome M. William Pitt, the finely marked M. Lena, M. Venus, M. Lucia, M. Beau Brummel, M. Hyena, M. Princess Mary and M. Bleuana nobilior. Other attractive plants included Wilsonara Wendy, with two long spikes of red flowers; Odontoglossum crispum xanthotes, Laelio-Cattleya St. George, with very deep purple flowers; Brasso-Cattleya Apollo, and B.-C. Thortonii; Cypripedium niveum, and the small but pretty Restrepia maculata, Masdevallia tridactylites, and the old Bifrenaria Harrisoniana.

Floral Committee.

Present (Section A): Mr. Henry B. May (in the Chair), Mr. F. J. McLeod, Mr. A. Turner, Mrs. E. M. Wightman, Mrs. Helen L. Smith, Lady Beatrix Stanley, Mr. H. J. Jones, Mr. Wm. Howe, Mr. D. Ingamells, Mr. M. Allwood, Mr. E. R. Janes, Mr. D. Allan, Mr. Hugh Dickson, Mr. A. Vasey, Mr. Jas. B. Riding, Mr. W. B. Gingell, Mr. D. B. Crane, Mr. W. P. Thomson, Mr. Chas. E. Pearson and Mr. G. W. Leak.

(Section B): Mr. E. A. Bowles (in the Chair), Mr. W. J. Bean, Mr. F. G. Preston, Mr. G. Reuthe, Mr. W. B. Cranfield, Mr. G. W. Leak, Mr. Reginald Cory, Hon. H. McLaren, Mr. R. W. Wallace, Mr. L. R. Russell, Mr. T. Hay, Mr. G. Yeld, Mr. A. Bedford, Mr. R. C. Notcutt, Mr. W. G. Baker, Mr. E. H. Wilding, Mr. R. D. Trotter and Sir William Lawrence.

AWARDS OF MERIT.

Anopterus glandulosus.—This handsome greenhouse evergreen shrub was introduced from Tasmania in 1823. It is of free, branching habit and has large, shining leaves much like those of the common Laurel, with a reddish midrib, though they are lightly serrated. The large, rounded, white—sometimes rose-tinted—flowers are borne in erect, terminal racemes. The young stems and flower stalks are flushed with red. Shown by Lt.-Col. Messel, O.B.E., Nymans, Handcross.

Berberis kansuensis.—This attractive deciduous Barberry made its appearance amongst others from a packet of seeds sent home from China by Farrer ten years ago. The plant is now rather over seven feet high by nine feet broad. It is of vigorous yet graceful habit and bears pale green obovate leaves and axillary, pendulous little clusters of round flowers of the same yellow colour as those of the common Laburnum. Shown by Mr. E. H. M. Cox, Glencarse.

Bomarea Banksii—This is a very showy variety of the South American genus of twining lilaceous plants. The exterior of the flower is of rich, deep orange colour, while the inside of the tuber is coloured orange and freely spotted with crimson. Shown by the Cambridge Botanic Garden.

Cineraria Intermediate Pink.—As the name suggests this greenhouse Cineraria is midway in type between the large-flowered dwarf and the smaller stellata varieties. The plants are compact, bushy, and bear quantities of lovely pink flowers. Shown by Messrs. Sutton and Sons.

Cistus wintonensis.—This dwarf little shrub appears to be of slightly rambling habit and quite suitable for planting in the rock garden. The stems and leaves are grey and the flowers, which measure nearly two inches across, are milk-white, with a distinct crimson-maroon zone. Shown by Messrs. Hillier and Sons.

Hippeastrum Magic.—A very handsome flower of good size, rounded shape, and deep scarlet colour with a longitudinal white band on each segment. This and the two following were shown by Lt.-Col. Sir George Holford, Westonbirt, Gloucestershire.

Hippeastrum New Pink Pearl.—Although smaller than most of the other varieties it is a particularly charming flower of perfect shape and beautiful pink colouring, with a little white at the base of the tube.

Hippeastrum The Bride.—A fine white variety with a little green at the base of the tube.

Rhododendron Lord Swaythling—This is a beautiful, large-flowered hybrid of spreading habit, and apparently flowers freely at an early stage. The flowers are of blush pink colour, paling towards the margins. The buds and outsides of the fully opened flowers are of shining deep pink colour. Shown by Messrs. R. W. Wallace and Co.

Polyanthus Greenway's Glory.—A splendid pan of this most delightful variety was shown. The individual flowers are large, of a fascinating velvety Venetian red colour, with a bright orange eye. It is an exceedingly floriferous plant. Shown by Miss Charlotte Christy, Boyton Cross, Chelmsford.

Rhododendron Madame Nellie Melba.—A very handsome truss of the type which luxuriates in the western counties was shown. The truss measured fully eight inches in depth, was of splendid shape and made up of large, round, widely-opened pink flowers which are deeper in shade on the outside and are lightly spotted with a narrow row of carmine and chocolate dots on each of the two lower segments. Shown by Lionel de Rothschild, Esq., O.B.E., Exbury, Hampshire.

OTHER PLANTS OF INTEREST.

In addition to the Anopterus, Lt.-Col. Messel showed sprays of Brachysema latifolia, an uncommon and beautiful shrub suitable for cultivation as a pillar plant in the greenhouse. The slender, graceful shoots and the under sides of the small, oblong-ovate leaves are covered with silky hairs. The Pea-shaped flowers are borne in short, axillary racemes and are of brilliant scarlet-cardinal colour. Sir William Lawrence showed vigorous branches of Ceanothus rigidus bearing large quantities of dark blue flowers. Mr. F. G. Wood had a plant of Potentilla fragiformis, a handsome species from N. W. America which bears large yellow flowers.

GROUPS.

Lt.-Col. Sir George Holford, M.V.O. (gr. Mr. Mitchell), displayed what was probably the most magnificent collection of Hippeastrums that has ever been exhibited. The whole of the tabling from the entrance to the tea annexe was filled with these handsome plants, which displayed a wide range of very beautiful colours. They showed a marked advance in form as well as in colour. Most of the blooms were of great size and of rounded shape. Of the many excellent varieties we especially noted the following: Cardinal Beaton, a very large, round flower of beautiful rose-cardinal colour; Rose Brocade, of rich rose-pink colour, flaked with white towards the base; Pink Topaz, of slightly paler tone and with more white; Cardinal York, deep old rose colour; Black Knight, rich crimson-maroon; Flashlight, rich orange; Phoebus, a deeper orange; Sigismund, orange, feathered with white; and The Ghost, Cameo, Pavlova and Loveliness, four fine white varieties.

On the opposite side of the entrance Messrs. Dobbie and Co. set up an equally large group of admirable Schizanthuses, Dr. Badger's strain. These large plants, growing in relatively small pots were raised from seeds sown last September and grown under cool conditions. There was a most delightful range of colouring, and on many of the plants the marking was very fascinating. The arrangement of the different colours was very successful and the plants displayed cultural skill of a very high order.

Carnations were again shown in good quantity and of high quality by Messrs. Stuart Low and Co., Mr. C. Engelmann and Messrs. Allwood Bros., who also had a pretty little garden of their perpetual border varieties and of Dianthus Allwoodii. Mr. J. H. Pemberton had a small exhibit of dwarf Polyantha Roses in small pots.

A collection of particularly well-grown Mimosas in pots was exhibited by Messrs. Stuart Low and Co. The chief species were Acacia pendula, of which they had one very large specimen plant elsewhere; A. armata, and A. juniperina. The exhibit also included plants of Boronia megastigma, Richardia Elliottiana, Hippeastrums and Gloxinias of good quality.

A good batch of their new Cineraria Intermediate Pink (see Awards of Merit) shown by Messrs. Sutton and Sons well illustrated its decorative value. E. M. Preston, Esq. (gr. Mr. C. T. Wood), The Warren, Hayes, displayed a large collection of well-grown plants of Senecio Cambridge Beauty; he also had an interesting little collection of British Orchids, which included Orchis latifolia, Orchis purpurea, Ophrys myodes, and Habenaria bifolia.

From the Society's Gardens, Wisley, was sent an interesting collection of the "Cape Scented Geraniums." This included the following, which also bear flowers of decorative value:—Pelargonium Palermo, crimson; P. Miss Cuthbertson, rose-pink; P. Rollisson's Unique, purple; P. cuculatum fl. pl., purple.

An uncommon exhibit in the form of a large rockery bank was arranged against a considerable wall space by the Hon. Vicary Gibbs (gr. Mr. E. Beckett) Aldenham House, Elstree, Hertfordshire. The limitations of space rendered the making of such an exhibit a somewhat difficult matter. The "general idea" seemed to be that of a fairly steep rocky bank. The approved type of rock garden stone was freely used and fresh green moss placed between the plants and shrubs made a good substitute for grass. There was a splendid collection of appropriate shrubs and plants, altogether, needless to say, very well grown, and a very bright display was made. The principal shrubs were Azaleas, largely of the Kurume type and very profusely flowered, Heaths in variety, Japanese Maples, Daphne Cneorum and D. palustris, while chief amongst the alpine plants were goodly patches of dwarf Irises, Trollius, Gentiana verna and G. acaulis, Æthionemas, Saxifragas and a goodly variety of Primulas.

On the tabling several trade firms made quite pleasing little low rockeries in which they displayed appropriate, seasonable plants. Messrs. Skelton and Kirby set out batches of Saxifragas and Gentians. Messrs. Hodgsons included Iris pumila and its varieties lutea and atroviolacea, and also had, in the background, Azaleas and Pyruses. Gentiana verna, Iris cristata, I. pumila cyanea, I. Harlequin and I. Regeliocyclus Psyche were very attractive in the rockery of Messrs. Waterer, Sons and Crisp. There was a goodly breadth of Androsace Chumbyi in a pleasant rock garden set out by Messrs. Maxwell and Beale, Daphne Cneorum, with abundance of bloom, Lithospermum prostratum Heavenly Blue and other seasonable plants were well disposed by Messrs. W. H. Rogers and Sons, while Messrs. M. Prichard and Sons gave prominence to Oxalis adenophylla, Gentiana verna, Æthionema Warley and Ramondia pyrenaica.

In the rock garden of Messrs. B. Ladhams, Ltd., there was a corner attractively planted with the useful Polygonum capitatum though many other useful plants were also shown. Mr. F. G. Wood had several good varieties of Trollius and the showy Potentilla fragiformis. Mr. J. Robinson and Messrs. Bakers, Ltd. also had attractive little rock garden exhibits. Dwarf Phloxes, Geum bulgaricum, a dwarf species which bears large, light orange-yellow flowers, Aubrietias in variety and a good pan of Raoulia australis were displayed by Messrs. R. Tucker and Sons; while in the Orchid annexe Mr. Clarence Elliott had Gentians, a pretty Silene acaulis variety, Violas and other desirable plants.

A fine plant of the beautiful Paeonia obovata alba which received a First Class Certificate at the Chelsea Show last year was shown by Mr. J. C. Allgrove. This was lifted from the open ground, and it illustrated how much earlier the season is this year. A number of flower spikes of Rheum palmatum rubrum were very decorative. In the front of his effective exhibit Mr. Allgrove placed several magnificent pans of Saxifraga longifolia. The Alpina Nurseries Co. had a low rockery planted with Gentians, Androsaces, dwarf Phloxes, Saxifrages, and other seasonable plants. Messrs. Jeans and Trowbridge showed many pots of Alpines, including Daphne Cneorum, Androsace in variety, Veronica rupestris rosea, and Houstonia serpyllifolia.

A good selection of Pyruses was well arranged by Messrs. J. Cheal and Sons, who also displayed floriferous branches of Cydonia Maulei and Berberis Crawley Gem, which may be likened to a very compact Berberis stenophylla.

A central group well arranged by Messrs. R. W. Wallace and Co., displayed floriferous Rhododendrons, particularly R. Countess of Athlone and R. Douglas McEwan, and many varieties of Azaleas. Messrs. L. R. Russell, Ltd., again showed well-flowered Clematis and other shrubs. Mr. R. C. Notcutt had a good selection of Pyruses, Berberis, Lilacs, and Japanese Cherries. Many trusses of Rhododendrons, Brooms, and other shrubs, with boxes of uncommon alpines were arranged by Mr. G. Reuthe.

The Maytham Gardens had a charming group of large plants of Astilbe (Spiraea) Peach Blossom, and also staged good pans of Aubrietias. In a corner space, Mr. G. H. Dalrymple again displayed many plants of the Bartley strain of Primula pulverulenta. Mr. G. W. Miller and Messrs. John and A. Crook showed Polyanthuses, and Messrs. Reamsbottom and Co. had a good exhibit of their showy St. Brigid Anemones.

In the Orchid annexe, Messrs. Jarman & Co. set up bright trusses of Zonal Pelargoniums. Their double-flowered varieties include Achievement, soft salmon-pink; A. Crozy, reddish salmon; Edmond Lachenal, bright crimson; Fleur Blanc, pure white; and Miss F. Perkins, bright pink. Good singles are Flame, a fringed flower; General French, scarlet shades; General Wolseley, rosy red; King Victor, salmon-scarlet; and Mars, crimson.

Narcissus and Tulip Committee.

Present:—Mr. E. A. Bowles (in the chair), Mr. J. S. Arkwright, Mr. George Churcher, Mr. J. W. Jones, Miss Willmott, Mr. Peter R. Barr, Mr. W. B. Cranfield, Mr. G. W. Leak, Mr. George Monro, Mr. Chas. H. Curtis and Mr. F. Herbert Chapman.

Groups.

Messrs. Barr and Sons contributed a large collection of choice blooms. As usual, they had excellent seedlings of various types, while the named varieties included Hexagon, Incomparabilis with a pale yellow tube; Eskimo, white Trumpet; The Admiral, a large Barrii with a crystal white perianth and a flattened, vivid crown; King of May, rich yellow Trumpet; Rosary, a large Trumpet variety with a white perianth, and an old ivory tinted tube; Suda, a large Trumpet with a fluted, primrose-coloured tube; Golden Flag, yellow Trumpet; and Pilgrim Father, yellow Incomparabilis. Blooms of many other excellent varieties were shown well in this collection.

Near the gallery, Messrs. R. H. Bath, Ltd., set up an attractive collection of Narcissus and Tulips. The former included Queen of the North and Sybil. Amongst the double Tulips were Imperator Rubrorum, William III and Vuurbaak. Messrs. F. H. Chapman, Ltd., had seedling Barrii and Poeticus Narcissi, and amongst the named varieties we especially noted Silver Salver and Gilt Edge, small Leedsii; Lanarth, Kestrel and James Hogg, Poeticus varieties.

Messrs. J. Carter & Co. displayed a number of Darwin Tulips in a very attractively arranged group. The principal varieties were Valentine, satiny heliotrope; Velvet King, purple-maroon; Mr. Farncombe Sanders, Centenaire, rich pink; and Roi d'Islande.

Fruit and Vegetable Committee.

Present: Mr. J. Cheal (in the chair), Mr. J. C. Allgrove, Mr. W. Poupart, Mr. H. Prince, Mr. J. Wilson, Mr. E. Neal, Mr. G. F. Tinley, Mr. A. E. Newby, Mr. W. H. Divers, Mr. E. Beckett, and Mr. W. F. Giles.

There was no exhibit of any description before this Committee.

NATIONAL AURICULA AND PRIMULA.

The annual exhibition of the National Auricula and Primula Society was held in conjunction with the R.H.S. fortnightly meeting on Tuesday, April 20. The exhibition Auriculas, as judged by the standard of the older florists, are amongst the most interesting flowers in cultivation, and it is to be regretted that so few grow these plants now-a-days, and that the exhibitions of the National Auricula and Primula Society are so meagre compared to what they were at one time. The small band of enthusiasts who grow and show these flowers are doing good work; it would be a thousand pities if the many splendid forms of the flower were to be lost to cultivation, which might easily happen if the number of enthusiasts dwindles as much in the near future as it has in the past few years.

On this occasion the competition was very poor, nevertheless, some excellent specimens of the various types of the flower were forthcoming, and a few novelties received awards.

In the largest class for twelve Auriculas, dissimiliar, there was no exhibit, and only two in that for six Auriculas, dissimilar, in which Mr. E. Heron-Allen, Large Acres, Selsby Bill, was placed first, and Mr. C. Kirch, Edenhall, Beckenham, second. The premier collection included the varieties Green Parrot, Elsie Stewart, Lucy Glitters, Blue Lady, Helene and an unnamed grey-edged seedling, which was adjudged the premier grey-edged plant in the exhibition. Mr. Kirch's best specimens were Gleam and Peggy.

There was only one entry in the class for two Auriculas, dissimilar, and none in that for four Auriculas, dissimilar. The exhibitor of two Auriculas was Mr. A. S. Hampton, Reading, who showed a grey-edged seedling and Grey Friar, both of moderate quality. The only exhibit of one green-edged Auricula was by Mr. E. Heron-Allen, who showed Goliath, and Mr. Kirch was the only exhibitor of a single specimen of a self Auricula, showing Mavis. There was much better competition in the class for seedlings which have not been exhibited before. The only green-edged variety was Edenhall, shown by Mr. Kirch, for which the second prize was awarded. This exhibitor had the best grey-edged variety in Daintiness, the best white-edged variety in C. Kirch, and the best selfs in Moonlight and Kitty, for which the first and second prizes respectively were awarded, and the fancy Prospero, which was awarded the second prize.

Mr. James Douglas was the only exhibitor in the class for twelve alpine Auriculas, dissimilar, his varieties including Angus, May Morning, King George, Daydream, Commander Roxburgh and Phyllis Douglas. Mr. Douglas was placed first for four exhibits in a class for six alpine Auriculas, dissimilar, showing Prince of Tyre, King George, Bookham Star, Argus and seedlings; second, Mr. A. S. Hampton; third, Mr. Kirch. In the class for four alpine Auriculas dissimilar, Mr. Kirch was placed first, and Mr. Hewitt Pitt, Bourne Lodge, Boxmoor, second. Mr. E. Heron-Allen was the only exhibitor of an alpine Auricula with a gold centre, to which the first prize was awarded, but there were three exhibits of Auriculas with white or cream centres in which Mr. A. S. Hampton excelled with Argus, and won the second prize with the same variety, the third prize being awarded to Mr. Heron-Allen for Prince of Tyre.

Mr. Hampton was the only exhibitor of six alpine Auriculas, dissimilar, open to amateurs who cultivate the plants themselves, his varieties being Majestic, Roxburgh, Argus, Janet, Glow and Phyllis Douglas. Mr. James Douglas was the only exhibitor of twelve fancy Auriculas in at least six distinct varieties, with Inyetsee, Salmon Fancy, Gardener and others.

Awards.

First Class Certificates were awarded to the grey-edged unnamed variety which was adjudged the premier variety, shown by Mr. Heron-Allen; *C. Kirch*, a white-edged Auricula; and *Moonlight*, a primrose-yellow self. *Mavis*, a self of mauvy pink colour, with a fine white paste, received an Award of Merit. All these three were shown by Mr. C. Kirch.

Mr. G. W. Miller was the only competitor in the classes for Primulas and Polyanthuses, and in some cases only the third prize was awarded.

The James Douglas Memorial Challenge Cup offered, on this occasion, for the best six alpine Auriculas, shown by an amateur, was awarded to Mr. A. S. Hampton.

Mr. James Douglas showed a representative collection of show and alpine Auriculas, having in all some fifty varieties. Outstanding alpine Auriculas were Picotee, Roxburgh, Bookham Star, Prince of Tyre, Argus and Phyllis Douglas, while of the show section there were excellent plants of Bookham Green, Sir John Falstaff, yellow, Grey Friar and Inyetsee.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT.

The monthly meeting of this Society was held in the R.H.S. Hall, on Monday, April 12, Mr. Charles H. Curtis presiding. Ten new members were elected. Two members withdrew £8 11s. 4d. from the interest on their deposit accounts; seven members over the age of seventy years withdrew £18 12s. 0d. from their deposit accounts and the sum of £61 2s. 10d. was passed for payment to the nominee of a deceased member.

The sick pay for the month on the ordinary side came to £74, and on the State section to £76 10s. 4d.; maternity benefits totalled £14. Grants amounting to £31 10s. 0d. were made to members towards the cost of dental and surgical treatment, and eight new cases were considered.

Reports and balance sheets have now been issued to members, and anyone wishing for a further copy should send to the Secretary, Mr. A. C. Hill, 35, Alexandra Road, West Kensington Park, W.14.

Obituary.

Joseph Dalgarno.—Amid every manifestation of respect and esteem the remains of Mr. Joseph Dalgarno were laid to rest on Monday, 19th inst., in Allenvale Cemetery, Aberdeen. Mr. Dalgarno was for many years one of the leading florists and nurserymen in Aberdeen. Born in Aberdeen, Mr. Dalgarno was trained at Kew, and held positions at Montrose, and in Dumbartonshire before beginning business in his native city. He built up an extensive connection, and, prior to the encroachment on his land for building purposes, employed a large staff. When his finely equipped Whitehall Nurseries had to go, he removed to Westfield, where he devoted his attention more particularly to the cultivation of flowers, fruits and plants under glass. He made a speciality of Tomato-growing, and in the winter season produced splendid Chrysanthemums. His expert advice was greatly in demand in the laying out of bowling greens, cricket pitches, etc. A most intelligent and well-read man, Mr. Dalgarno had an inventive mind, and from time to time devised and patented labour-saving implements, some of which are now in use in the largest establishments in the country. Pre-deceased by his wife, Mr. Dalgarno is survived by four sons and four daughters.

ANSWERS TO CORRESPONDENTS.

Vine Leaves attacked by a Fungus.—*A. G. P.* The fungus on the vine leaves is the grey mould, Botrytis cinerea. This is a common pest of Pelargoniums, vines and other plants. All decaying vegetable matter in the house should be removed, as well as dead or dying leaves. The house should be kept well-ventilated and not too damp.

Weed from a Lawn.—*J. P.* The weed is Cerastium vulgatum (Mouse-ear Chickweed). It is a perennial and occurs in every county of Great Britain, growing everywhere in waste places, pastures, meadows, banks by the way-side, and is a common weed of lawns. It also occurs in cultivated land, and if not hoed up or otherwise destroyed, it would soon form a broad patch, six to twelve inches high when in bloom. On lawns that are regularly mowed, it forms a close, evergreen carpet that cannot be uprooted without great difficulty because of its habit of rooting at short intervals, in the soil. We agree that the seed was or could have been in the soil before the grass was sown. It would be impossible to guarantee any soil, light or heavy, to be free from seeds.

Communications Received.—J. S.—R. B.—Hortus.—A. M.—W. K.—J. F.—P. G.—J. McE.—A. H. L.—J. R.—C. H. W.—A. H.—J. T. B.—C. T.—R. A.—E. M. B.—A. B.—J. B. P. L. S.

MARKETS.

COVENT GARDEN, Tuesday, April 20th, 1926.

Plants in Pots, etc.: Average Wholesale Prices.

(All 48's except where otherwise stated).

	s. d. s. d.
Adiantum cuneatum per doz.	12 0-15 0
—elegans	12 0-15 0
Aralia Sieboldii	9 0-10 0
Araucarias, per doz.	30 0-42 0
Asparagus plumosus	12 0-18 0
—Sprengeri	12 0-18 0
Aspidistra, green	36 0-60 0
Asplenium, per doz.	12 0-18 0
—32's	24 0-30 0
—nidus	12 0-15 0
Azaleas, 48's, each	4 0—6 0
Boronia megastigma, 48's, per doz.	30 0-36 0
Cacti, per tray —12's, 15's	5 0- 7 0
Cinerarias, 48's, per doz.	18 0-21 0
Crotons, per doz.	30 0-45 0
Cyclamens, 48's in variety, per doz.	24 0-30 0

	s. d. s. d.
Cyrtomium	10 0-25 0
Daffodils, 48's, per doz.	18 0 21 0
Genistas, 48's, per doz.	24 0-27 0
Hyacinths, large white, 48's, per doz.	21 0 24 0
Hydrangeas, pink, 48's, per doz.	24 0-30 0
—white, 48's, per doz.	24 0-27 0
—blue, 48's, per doz.	24 0-36 0
Marguerites, 48's per doz.	18 0-21 0
Nephrolepis in variety	12 0-18 0
—32's	24 0-36 0
Palms, Kentia	30 0-48 0
—60's	15 0-18 0
Pteris, in variety	10 0-15 0
—large, 60's	5 0- 6 0
—small	4 0- 5 0
—72's per tray of 15's	2 6- 3 0

Cut Flowers, etc.: Average Wholesale Prices.

	s. d. s. d.
Adiantum decorum, doz. bun.	10 0-12 0
cuneatum, per doz. bun.	8 0-10 0
Anemone fulgens, per doz. bun.	2 6- 3 6
Arums (Richardias) per doz.	4 0—5 0
Asparagus plumosus, per bun., long trails, 6's,	2 0- 3 0
med. sprays	1 6- 2 6
short	0 9- 1 3
— Sprengeri, bun long sprays	1 6- 2 0
med. „	1 0- 1 6
short „	0 4- 1 0
Camellias, white per box, 12's	2 6- 3 0
Carnations, per doz. blooms	2 6- 3 6
Croton leaves per doz.	1 9- 2 6
Daffodils, Emperor, per doz. bun.	4 0—5 0
—Grandee, per doz. bun.	4 0—5 0
Fern, French, per doz. bun.	10 0-12 0
Forget-me-not, per doz. bun.	6 0- 8 0
French Flowers — Anemones, St. Brigid, per doz. bun.	3 0—4 6
—double red, per doz. bun.	6 0—7 0
—Parma Violets, per bun.	3 0—3 6
—Ranunculus, scarlet, per doz. bun.	4 0—5 0
—Star of Bethlehem, (Allium), per doz. bun.	3 0—3 6
Gardenias, 12's, 18's, per box	3 0—4 0
Gypsophila	4 0—6 0
Heather, white, per doz. bun.	10 0-12 0
pink, per doz. bun.	9 0-12 0
Iceland Poppies, per doz. bun.	6 0—7 0
Iris blue, per doz. blooms	1 6—2 6
—mauve, per doz. bun.	15 0-18 0
—white, per doz. bun.	24 0-30 0
—yellow	30 0-36 0

	s. d. s. d.
Ixias, red	5 0- 6 0
—mixed	4 0—5 0
Lilac, white, per doz. sprays	6 0--7 0
Lilium longiflorum long, per doz.	4 0—4 6
—speciosum rubrum, long, per doz. blooms	3 6--4 0
—short, doz. blooms	2 6--3 6
Lily-of-the Valley, per doz. bun.	24 0-30 0
Narcissus Poeticus, per doz. bun.	4 0—5 0
—Barrii, per doz. bun.	3 6—4 0
—Poetaz, per doz. bun.	5 0—6 0
—Horace, per doz. bun.	5 0—6 0
Orchids, per doz.	
—Cattleyas	24 0-30 0
—Cypripediums	5 0--7 0
Roses, per doz. blooms—	
—Madame Abel Chatenay	3 0 4 0
—Molly Sharman Crawford	3 0—4 0
—Richmond	3 0 —5 0
—Columbia	3 0—5 0
—Golden Ophelia	3 0—4 0
—Sunburst	3 0—4 0
—Mrs. Aaron Ward	2 0—3 0
—Madame Butterfly	4 0—5 0
Smilax, per doz. trails	6 0--7 0
Stock, double white, per doz. bun.	3 0—4 0
Sweet Peas, per doz. bun.	12 0-18 0
Tulips—	
—white	8 0-12 0
—yellow	12 0-18 0
—scarlet	8 0-12 0
—pink	8 0-12 0
—W. Copland, per doz. bun.	9 0-18 0
—Clara Butt	9 0-18 0
—Darwin—	
—Bartigan	9 0-18 0
—Elizabeth	9 0-18 0
—Farncombe Sanders	9 0-18 0
Violets	3 0--4 0

Remarks.—Daffodils from home-growers are now practically finished. Small consignments of these blooms are coming to hand from Scotland, including Emperor, Barrii and Grandee; Narcissus Glory of Lisse and Horace are taking the place of ornatus, which begins to show signs of finishing. The first arrival of Poeticus was on sale to-day, and larger supplies are expected this week. There is an abundant supply of Darwin Tulips which vary considerably in price according to quality. Spanish Irises have also increased in quantity, both from home growers and the Channel Islands, and their prices are on the down grade. Carnations have been dearer, but Roses have been sufficient for all requirements; red Roses may advance in price during the next day or so, but all varieties are arriving in excellent condition. Small consignments of double white Stock from home-growers have been greatly welcomed, also a larger supply of Sweet Peas. The prices of Arums (Richardias) and Lilium longiflorum have been the lowest so far this season. The newest arrivals in this department are Gladiolus Peach Blossom, Iceland Poppies and Gypsophila. Flowering plants are receiving most attention in this department; the newest subjects are scarlet Salvias, Fuchsias, Erica Cavendishii, E. coccinea, E. Willmoreana, Pelargoniums, Cinerarias, Boronias, Marguerites, white and coloured Stocks, Acacias, rambler Roses and Polyantha Roses in variety; also a good supply of white, pink and blue-flowered Hydrangeas. Ferns in various sizes, also Palms and other foliage plants are now in good condition. Business is brisk with herbaceous plants, alpines and other hardy plants.

Vegetables: Average Wholesale Prices.

	s. d. s. d.
Artichokes, green per doz.	2 0--3 0
Asparagus, English—	
—Evesham	3 0—6 0
—Devon	4 0—8 0
—Cambridge	1 6--2 0
Asparagus—	
—Cavaillon	1 0—1 2
—Lauris	1 3—2 0
Beans—	
—Madeira, per basket	3 0--4 0
Boxes	3 0—4 0
—Guernsey and Worthing forced	1 0—1 9
Beets, per cwt.	7 0--9 0
Cabbage, per doz.	2 0—3 0
Cauliflowers, per doz.	2 6--5 0
New Carrots, per doz. bundles	8 0-12 0
Chicory, Belgian, per lb	0 6--0 8
Cucumbers, per doz.	4 0—6 0
—Flats	14 0-18 0
French Cabbage, crates 24's	4 0—5 0
Endive, per doz.	2 6--3 0
Horseradish, per bundle	1 6--2 0
Lettuce, round, per crate	3 0--5 0
—long, per doz.	3 0—4 0
—Dutch, per crate	3 0—5 0
Marrows, Forced per doz.	8 0-15 0
Mint, forced	2 0—4 0
Mushrooms, —French	1 6--2 0
Mushrooms, —cups	2 0--3 0
—Broilers	1 6--2 0

	s. d. s. d.
Onions—	
—Dutch	8 0--8 6
—Egyptian	9 0-10 0
—Valencia	8 0-10 0
Parsnips, per cwt.	6 0--7 0
Peas, Forced	1 6—2 6
Peas, French crate	5 0—6 0
Potatos—	
—Dunbar	7 6--8 0
—King Edward, per cwt.	5 6--7 6
—others	3 6--5 0
New Potatos—	
—Spanish, per cwt.	20 0-22 0
—Algerian per lb.	0 1½ -0 2
—Azores, per case	12 6-15 0
—Canary Island	10 0-15 0
—Guernsey	0 3½-0 4
-Scilly, per lb.	-- 0
Rhubarb, forced, per doz. bundles	0 9--1 3
—outdoor	4 0--5 0
Seakale—	
—natural, per ½-sieve	4 0—5 0
Spinach, per bushel	5 0—5 6
Spring Greens, per bag	5 0—7 0
Tomatos, Canary Islands Best	25 0-30 0
—English	2 0—3 0
Turnips, per cwt.	5 0--7 0
—new, per doz. bunches	8 0-10 0
Turnip Tops, per bag	3 6—4 0

Fruit: Wholesale Average Prices.

	s. d s. d.
Apples, Cooking—	
—Bramley's Seedling	8 0-12 0
—Newton Wonder	7 0-10 0
Apples, American	
—Albermarles brl.	35 0-36 0
—Oregon Newtown	13 0-15 0
—Winesap	8 0-10 0
Apples, New Zealand—	
—Cox's	16 0-20 0
—Worcester Pearmain	11 0-13 0
—Ribston Pippin	14 0-15 0
—Jonathan	14 0-15 0
Apples, Tasmanian—	
—Cox's	15 0-17 0
—Ribston Pippin	12 0-14 0
—others	10 0-12 0
Apples, Victorian	
—Jonathan	13 0-15 0
—Worcester Pearmain	10 0-12 0
Bananas	14 0-25 0
Gooseberries, per lb.	2 0—2 6
Grapes, Belgian—	
—Gros Colmar	3 0--5 0
Grape Fruit,	
—Jamaica	25 0-30 0
—Florida	32 6-40 0
Lemons, Messina, per box	9 0-10 0
—Naples, box	14 0-20 0

	s. d. s. d.
Oranges—	
—Denia	11 0-25 0
—Murcia	11 0-25 0
—Jaffa	18 0-24 0
Peaches, Belgian, per doz.	9 0-24 0
Pines	2 0—4 0
—Almeria	— -21 0
Forced Strawberries	10 0-18 0
South African fruits—	
—Josephine	5 0—6 0
—Nelis	4 6—6 0
—Duchesse	4 0—6 0
—Comice	7 0-10 0
Australian grapes—	
—Red Prince	20 0-22 6
—Black Malagar	— -21 0
Australian pear—	
—Beurré Bose, per tray	7 0 —8 0
Australian plums, tray	6 0-10 0
South African Grapes—	
—Barbarossa	7 0--8 0
—Harab Turki	10 0-12 0
—Red Hoonepoot	4 0--7 0
—Waltham Cross	8 0-10 0
Strawberries, per lb.	5 0-12 0

Remarks:—A fairly healthy tone has ruled in most sections during the past week. South African fruits have been a feature, the quantities of which are larger than at any time during the present season. So far they have met with a good inquiry, and although some of the Grapes have been in poor condition the fruits generally have been very fine. Apples from Australia, New Zealand, and Tasmania are plentiful and selling at reasonable prices. Australian Pears and Grapes are also in popular demand. A few home-grown Bramley's Seedling and Newton Wonder Apples are still being marketed and selling fairly well. The first Gooseberries of the season have been sold, the earliest consignments being from Devon. The prices for forced Beans showed some improvement during the past week. New Potatos from Guernsey, Jersey and Scilly, however, have fallen in value sharply due to the competition with new Potatos from Spain. There are also plenty of new Potatos from Algeria, Azores and the Canary Islands. Guernsey Peas do not yet move very freely, probably due to the comparative cheapness of French Asparagus. This latter is also adversely affecting the sale of the earlier cuttings of English Asparagus and there can be no improvement in that section until the French produce is finished. Mushrooms are a steady trade at satisfactory prices. Natural Seakale has not been wanted and quotations for this vegetable are low. There should, however, be some improvement in the demand for Seakale, as Asparagus gets less plentiful. Green vegetables are a fairly good trade. Salads are in steady demand. Trade in old Potatos is quiet, and stocks are ample for requirements.

GLASGOW.

There was a slight improvement in some prices but none in others, and cut flowers during the past week remained cheap to buyers and unremunerative to growers. The condition of the blooms still leaves much to be desired, as a considerable proportion of the English and Guernsey blooms arrived in a soft state. Early in the week, W. Copland Tulips could be purchased at 4d. per bunch, while Guernsey blooms declined to 2d. The general range of values was wide, and may be quoted as follows:—Murillo, 3d. to 6d.; Prince of Austria and Pride of Haarlem, 6d. to 9d.; Farncombe Sanders and Madame Krulage, 4d. to 6d.; Bartigon special, 9d. to 1/-; W. Copland, 4d. to 10d.; White Swan, 2d. to 4d.; Voorbaak, 2d. to 3d., and Cardinal, 2d. Golden Spur and princeps Daffodils are finished for the season. Olympia was worth 8d. to 10d.; King Alfred, and Weardale Perfection, 8d.; Victoria and Horsfieldii, 1d. to 3d.; Emperor, 2d. to 3d.; Horace and Glory of Lisse, 4½d.; Fireball, 5d.; Barrii and King George, 2d. to 2½d.; White Lady, 2½d. to 3d.; and Pheasant Eye, 1½d. to 4d. Guernsey Iris made 2d. to 6d.; special blue, 9d.; English Iris, 2/- to 2/6. Carnations realised 2/6 to 4/6 per dozen. Roses, 3/- to 5/- per dozen. Lilac was worth 3/- to 6/- per dozen sprays, and 1/- to 2/- per bunch; English Richardias sold for 4/-; Guernsey, 2/- to 3/6. Other prices were Lilium longiflorum (Harrisii), 3/6 to 5/-; Lily-of-the-Valley, 1/6 to 1/9; English Violets, 6d. to 9d.; Wallflower, 1/- to 2/-; Asparagus Fern, 4d. to 2/6; and Smilax, 1/6 to 2/-. Tomato plants in pots sold at 2/- per dozen.

The fruit market was quiet and featureless, prices showing little movement either way. Oranges commanded last week's values, and the only change in American Apples was an advance of 5/- per barrel for Albemarle, which sold from 35/- to 45/-. South African fruits continue plentiful but the quality of the Pears is variable. Beurré Bose were 6d. dearer at 5/6 to 6/6; Winter Nelis fluctuated between 6/- and 7/-; and Glou Morceau, 5/6 to 7/-. Other brands were just steady.

The outstanding features in the vegetable department was the slump in outdoor-grown Rhubarb to 6/- per cwt, while forced stems only made from 8/- to 12/-. Lettuce was slow to move and as supplies were exceptionally heavy, the Dutch product had a sharp fall to 2/- per crate, and on one day 7d. was accepted. Guernsey Tomatos averaged 2/9 to 3/- per lb. Cucumbers were also cheaper at 7/- to 8/- per dozen.

TRADE NOTE.

We feel sure many of our readers will join with us in congratulating Mr. James Stroud, the senior partner of the firm of Messrs. Stroud Brothers, Ltd., who attains his eightieth birthday on the 23rd instant, and to know that he is still taking an active part in the business and enjoying good health. Mr. Stroud has spent the whole of his life in horticultural work, and his firm, which is a very old-established one, is well-known for its activities in the floral and decorative department of the nursery business. It is not given to many to reach this age, and we wish him many happy returns of the day.

THE WEATHER FOR MARCH.

Remarks.—This was a very dry March, and nine-tenths of its small total rainfall was precipitated during the first ten days, the remainder of the month, excepting its last day, being virtually rainless. Westerly weather, mostly of a remarkably stormy character, but unusually mild, prevailed until the 15th. A great change then occurred, and easterly airs set in, and continued, without intermission, up to the 28th. Several nights during the latter spell were frosty and a few days cold; but abnormal warmth burst out afresh early in the last week of the month. The mean temperature was 43.7°, which was 2.3° above normal. Cloudy and hazy skies reduced the total duration of sunshine to 102.5 hours, or 15.7 hours below normal. Rain fell on ten days, or five fewer than the average number; and the total amount was only 1.02 inch, implying a shortage of 1.28 inch. Gales occurred on six days, and occupied so many as fifty-eight hours; some damage was done early on the 4th by a violent "line-squall," in which momentarily a maximum wind-velocity at the rate of eighty-one miles per hour was registered. Hail fell on four days, and very slight snow twice. Ground-frost occurred on eleven nights, but the shaded thermometer only three times fell just below the freezing point. A slight thunderstorm was experienced on the 4th. Bright Aurora was seen on the evening of the 9th. Fog prevailed for a time on the 16th. *Joseph Baxendell, The Fernley Observatory, Southport.*

SCHEDULES RECEIVED.

Royal Caledonian Horticultural Society.—Autumn exhibition to be held on September 8 and 9, in the Waverley Market, Edinburgh.—Secretary, Mr. Donald Mackenzie, 4a, St. Andrew Square, Edinburgh.

Dorset Horticultural Society.—Exhibition to be held in Ranston Park, on Wednesday, July 28.—Secretary, Mr. H. R. Tuffin, Ranston Gardens, Blandford, Dorset.

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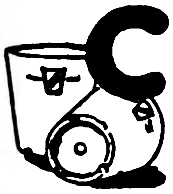

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THE Gardeners' Chronicle

No. 2053.—*SATURDAY, MAY* 1, 1926.

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Rhododendron Dorothea.

Average Mean Temperature for the ensuing week deduced from observations during the last fifty years at Greenwich, 50·5.

Actual Temperature—

The Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, April 28, 10 a.m. Bar. 30. Temp. 50°. Weather, Wet and dull.

The Swiss National Park. Every one who knows Switzerland loves it and each of us who has learned to know the Swiss recognises that his admiration for that country is after all but a pale image of the intense affection and fine pride which the Swiss bestow on their lovely land. It is this common bond of feeling for natural beauty that makes a friendly kinship between the Swiss and ourselves. This love of country which inspires the Swiss inspires them to some purpose—for they are also a practical people. Recognising that this holiday ground of Europe which draws such vast numbers of visitors to its mountains is in danger of losing some of its pristine charm, the Swiss have decided that one spot at least shall be saved from spoliation. One of the fairest of her provinces Switzerland has surrendered, handing it back to the control of Nature. From that area of some fifty square miles, all interference with Nature is henceforth to be denied. Were he to revisit the earth and make once again his journey on foot from Chambery to Turin, Rousseau who did so much to turn mankind back to Nature, might be excused if he recognised his memorial in this great national park. No sound of gun will echo in that region, no new railway or road violate it. Fish may not be taken, nor plants dug up, even the tree which falls must be let lie. The woodcutter must ply his trade elsewhere and the "high pasturing kine" with their tinkling bells must be turned elsewhere to graze; for the produce of the soil is reserved for the animals native to the region. Those who wish to explore this sanctuary of nature must be content with the shelter of alpine huts—and what joyous shelter for the strong they are! In no half-hearted way then have the Swiss dedicated this plot of ground which stretches up through pasture and forest land beyond the tree limit of 2,300 metres and beyond the snow line which lies at an altitude of nearly 10,000 feet. Those who attended the Hooker lecture at the Linnean Society, given on April 15 by Prof. Carl Schroeter of Zurich—than whom none knows more of the Swiss alpine flora—had the great pleasure of hearing with what enthusiasm and thoroughness the Swiss have engaged in the preservation of the beauty of their land. The Swiss League for the Protection of Nature numbers 30,000 and largely as a result of its activities bird sanctuaries — twenty in number — have been created in different districts. Promoters of railways for whom not even the Matterhorn is sacred have been thwarted in their impious aims and that most beautiful of mountains is at all events to remain inviolate. It is the League also that with the support of the Swiss Government is providing financial means for the new kind of exploration to which this "letting in the jungle" will give rise. There are there woodland and grass land and alpine heights; forests of Pinus Cembra, mixed woods of Spruce and Larch, the endemic variety of Scotch Fir (Pinus sylvestris var. engadensis) and large tracts covered with the creeping mountain Pine (P. montana var. prostrata); chalk and granite are found there and east and west alpine floras meet somewhere within the borders of this reserve of the lower Engadine; and there, too, are to be found chamois and marmot, deer and golden eagle. Already, during the ten years of reservation, Nature has done good gardening work, a rich flora has developed in the abandoned pastures—and if richer than in used Swiss pastures it must indeed be wonderful. All these changes which Nature is working are being followed stage by stage by a band of Swiss investigators and already a number of new forms of plants have been discovered; for example, no fewer than seven plants have been found within the snow region, which were not previously known to occur there. It remains to be seen whether Nature will be found in the long run capable of the management of this large estate re-vested in her. She used to manage the world; and in a large way it was no doubt successful; but even if one element of the fauna—the foxes for example—get out of hand or the struggle between grassland and woodland lean two pronouncedly toward, the latter, it will always be possible for the League to intervene and help Nature to redress the balance.

Queen's Visit to the Royal Nurseries, Slough.—On Friday, April 23, Her Majesty Queen Mary paid a visit to Mr. Charles Turner's Royal Nurseries, Slough, and spent some time inspecting the trees and shrubs and other plants for which this firm is noted. During her visit she was accompanied by Mr. Arthur Turner who is justly proud of this continued royal interest in his firm.

Presentation to an old Employee.—Recognition of long service is always pleasing, and it is therefore of interest to notice that Messrs. Pulham and Son recognised the excellent service rendered to them by Mr. R. Squires for a period of fifty years by presenting him with a walking stick engraved "R. S., 1876-1926." Mr. J. R. Pulham, in making the presentation at the firm's Broxbourne works, stated that Mr. Squires joined the staff on February 26, 1876, and expressed the hope that good health might enable him to continue his services to the firm for many years to come. In passing, it is of interest to note that during the past two years three old members of Messrs. Pulham's staff have passed away, their services aggregating over 180 years. One of their employees has been with them for sixty-three years and several for forty years, all of which provides ample evidence of the good feeling maintained between employers and employed.

Strawberry Disease.—The Lanarkshire Strawberry crops have suffered from a form of disease which has resulted in serious loss to growers, and last year, when the trouble had spread to new areas, the Board of Agriculture was approached with the view of investigating the cause and nature of the outbreak. At a meeting of growers held at Crossford Public Hall on Tuesday, April 20, Principal Paterson, Mr. Howells and Mr. D. G. O'Brien, of the West of Scotland Agricultural College, addressed the meeting and it was announced that funds had now been provided by the Board of Agriculture for the purpose of an enquiry into the matter. The officials explained the lines along which they proposed to work, and Principal Paterson invited the active co-operation of all Strawberry growers in the county. An advisory committee was appointed to assist the officers of the college.

Sugar Beet in Scotland.—According to the Agricultural Controller of the Second Anglo-Scottish Beet Sugar Corporation, the response of the farmers to the appeal to grow Sugar-Beet for the Cupar factory is improving. Many contracts have been signed, but the factory is still open to accept a further acreage. Seeds should be drilled from late April to the middle of May to ensure crops satisfactory, both in weight and Sugar content.

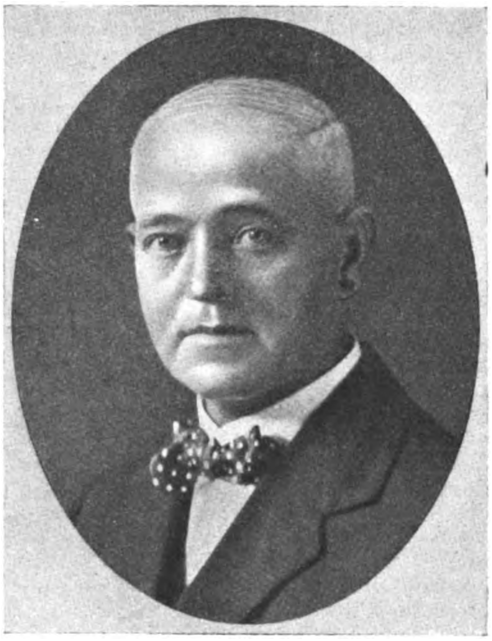
Forestry Commission's Latest Purchase.—The Forestry Commission is rapidly acquiring a large area of land in the county of Argyll. The latest purchase is the mansion house and policies at Glenfinart, which belonged to Major J. H. P. Leschallas, and extends to 8,279 acres. The estate lies amidst charming Highland scenery on the west shores of Loch Long, and it is proposed to form about thirty forest-workers' holdings, consisting of from three to ten acres of cultivable and pasture ground with certain out-runs in addition. The Commission guarantees the small holders 150 day's work in the year. The mansion house with adjoining policies and fishings are to be sold, but the Commission will retain the lettings of the five farms on the estate. The purchase of Glenfinart gives the Commission a combined area of forestry land extending to over 30,000 acres in that district. Ballymeanach, which was acquired this spring, extends to 2,517 acres. Adjoining it to the south is Glenbranter, of 9,700 acres, fued from Sir Harry Lauder, while Mr. Younger's gift of the estate of Binmore, further south still, is 10,200 acres in extent, so that with the exception of a narrow strip on the east bank of Loch Ech, the area lying between that loch and Loch Fyne is now in the hands of the Forestry Commission.

Littery People.—In the furtherance of the endeavour to inculcate tidier habits in picnickers and others, *The Observer* offered a prize for the best phrase suited for a notice to be displayed in public places. The prize phrase, "Clear up before you clear out," was published last Sunday with a selection of other phrases sent in for competition. Several quite good, appealing phrases were ruled out on account of their length, though the most direct and terse was "Don't be a common blighter." Altogether we prefer the appeal which for some time past has been fixed close to the chief entrances to the Royal Botanic Gardens at Kew. This in red lettering on white boards, is "The Gardens are National Property for Public Enjoyment. Keep them tidy." These notices are backed up by a plentiful supply of baskets. We are inclined to the opinion that less litter is spread in Kew by the public than in other public places, and attribute this in part to the notices, but more largely to the unobstrusive influence of the garden constables. Each patrolling constable is responsible for a "beat," and they vie with each other in the tidiness of their beats. So, as they patrol, they collect paper and other litter that may be spread on the ground. It requires considerable force of bad character on the part of the visitors to throw litter about when the uniformed men are gathering it up. Unconsciously, these constables are performing good public service in educating the visitors to be tidy.

The Conservatory in the Royal Botanic Gardens, Regent's Park.—We learn from the *Quarterly Summary* of the Royal Botanic Society of London that the repairing of the conservatory roof is almost completed. "Hundreds of panes of glass have had to be renewed, the iron cleared of rust and repainted." Gardeners who have had occasion to visit the Botanic Gardens at such functions as the National Rose Society's exhibitions have been surprised that the Council should allow this fine building, which was erected in 1846, to suffer such neglect. It will be a pleasure to them on their next visit to see the building smartened up, and it is to be hoped that this is but the precursor of other improvements in these one-time famous gardens, which in late years have suffered great neglect. We learn from the *Quarterly Summary* that Lady Tweedy has made a donation of £100 towards the cost of re-erecting the greenhouses.

The Genus Empetrum.—At the meeting of the Linnean Society, to be held on May 6, R. D'O. Good, Esq., M.A., will discuss the genus Empetrum, one of the three genera composing the family Empetraceae, now generally considered to be most closely related to the Ericaceae. Empetrum has a very wide but discontinuous geographic range. In the Northern Hemisphere it occurs almost everywhere above the latitude 40° N. In the Southern Hemisphere it is found in western South America below the latitude 35° S., throughout Fuegia and the Falklands, and in the Tristan d'Acunha island group. The abundance of the genus throughout the greater part of its range has resulted in the collection of an unusually large number of specimens. Examination of these shows that the individual plants are by no means constant in character, but differ considerably among themselves. This variation is due chiefly to the differential development of seven important morphological characters, *i.e.*, general habit, degree of hairiness, shape and size of leaf, arrangement of leaves, angle of leaf insertion, sex of flower, and colour of berry. There are certain other variable minor characters, but it is to these seven that the noticeable differences between individuals are due. Among these characters there are three distinct types of variation, which may be distinguished as "continuous," "compound-continuous," and "discontinuous." It might be supposed that such variation would result in an enormous number of slightly and equally different forms within the genus. Actually, however, only a very few of the theoretically possible character-combinations occur, and any individual plant can be placed without hesitation into one, and only one, of ten perfectly distinct units. This feature is due mainly to correlated variation (the association of a particular condition in one variable character with a definite condition in some other character), but also to marked geographical segregation, especially in the more isolated parts of the generic range. Mr. Good considers generic constitution resulting from these phenomena is best expressed taxonomically by recognizing two distinct species, one with a sub-species, a variety and three forms, and the other with three forms.

The Centenary of the Zoo.—Although the Zoological Society of London has been in existence just a hundred years this week—on Thursday to be exact—the official celebration will not be held until 1929; as in 1829 the Royal Charter was granted. The Zoological Society is of special interest to horticulturists in that the Society was launched on April 29, 1896, at the headquarters of the Horticultural Society (now the Royal Horticultural Society) in Regent Street, and that for many years the summer-bedding schemes in the gardens have been accounted amongst the very best in the metropolis. The first home of the Society was in Bruton Street, where a museum was opened and the first animals were housed. A start was made with quite a small collection, given by Mr. Joshua Brookes, which included a griffin vulture that lived for about forty years. Very soon the Government granted the use of the site in Regent's Park, and the King presented the two hundred or so animals of the royal collection then at the Tower of London. From this comparatively small start the collection at the Zoo has increased to over five thousand, which requires enormous annual quantities of farm and garden produce for their sustenance. While the public have been admitted to the Zoo practically from the outset, it was not until 1847, when a charge for admission was instituted, that they were welcomed, and the attendance has risen from 13,994 in 1829 to 1,823,613 last year, though considerably over two millions visited the gardens in 1924.



THE LATE MR. S. McGREDY.

Presentation to Mr. G. F. Tinley.—A presentation of a gold watch, subscribed by his fellow members of the Committee, was made at the Committee meeting of the Royal Gardeners' Orphan Fund on Wednesday, April 21st, to Mr. G. F. Tinley "In recognition of services rendered to the Charity, 1923–1925." In making the presentation the Chairman, Mr. D. Ingamells, referred to the good work done by Mr. Tinley on behalf of the fund during the long illness of the late secretary, Mr. Brian Wynne, and he had pleasure in handing him the watch as a token of the appreciation of the Committee for his services. Mr. Tinley, in thanking the Committee for their gift stated that he would always cherish it as one of his most valued possessions and as a memento of his pleasant association with the management of the Charity.

A New Colour Scale.—Mr. Ernst Benary, the famous Erfurt nurseryman and seedgrower, tired of attempting to describe shades of colour in his seed catalogue so as to convey a true idea to his readers, has adopted a scheme of colours worked out by a German professor, Prof. W. Ostwald, which has been published by the German Institute of Colour-science, at Dresden. After each description in his catalogue, Mr. Benary appends in brackets a combination of letters and figures, thus:—Æthionema grandiflorum, lilac rose (9.lc/10.ea), which will enable those who know the system, and possess the necessary apparatus, to get an almost exact idea of the colour indicated. The method of building up the colour-scale is ingenious, and too complicated for detailed description here. It is sufficient to say that it is based on eight fundamental tones—yellow, orange, red, mauve, two different blues, and two different greens. Each of these eight tones is sub-divided into three gradations, making altogether twenty-four tones, which are again sub-divided, the separate shades being distinguished by double letters. Thus, 9 lc indicates a colour which will be found under tone 9 (a series of shades from pale pink to deep cherry), the exact shade intended being about half-way between the two extremes; while 10 ea, the second colour of the flower, is also pink, but with a somewhat mauver complexion. The method permits of a considerable degree of accuracy, though, as Mr. Benary himself admits, there are some tones found in flowers which cannot be correctly imitated by any artificial process whatsoever. The great drawback to the use of the system in a catalogue is that so few of its readers are likely to possess the necessary apparatus on account of its high cost, the price being £3. It consists mainly of a box of twenty-four cardboard strips a foot long and about an inch wide, on which the various shades, from the lightest to the darkest in each of the twenty-four series, are represented by little slabs of colour, roughly half-an-inch square. Each of the strips is numbered according to the tone series, and each separate colour has above it its appropriate pair of distinguishing letters as well as being grouped under roman numerals, which are part of the evolutionary process of the method, but are not used for reference. There are also half-a-dozen variously sized cardboard slots for holding, for example, the petal of a flower, or a leaf; the slot is threaded on to the strip, and the petal or leaf is thus brought into immediate contact with the colour on the strip, and can be very conveniently matched. A printed chart on art paper, issued by the Institute with the idea of making the method more accessible, is at present a failure, the printed colours in many cases bearing not the least resemblance to the corresponding shades on the strips; but perhaps further attempts may be attended with a greater measure of success. There is no doubt at all but that some sort of standard repertory of colours is very badly needed.

Forest Fires in Canada in 1925.—We learn that there were no fewer than 5,490 forest fires in the Dominion of Canada during the past year. These were spread over an area of 1,913,066 acres, and caused a total loss valued at $6,646,889. Nova Scotia and New Brunswick appear to have been particularly fortunate in regard to losses from fire, and as a result of the excellent patrol service now established in Quebec, only 25,000 acres were reported as having been burnt in that province during 1925, or about ten per cent. of the loss sustained in 1924. A large acreage of mature timber was burnt in the forested area of Manitoba, Saskatchewan and Alberta, including over 105,000 acres of young trees, and 65,000 acres of mature timber. The province of British Columbia suffered more from forest fires last year than during any period of her history, for over 3,000 fires were reported, covering an area of 1,315,822 acres. A large number of fires in Canada were caused by lightning, and these probably amounted to about twenty-five per cent. of the total, while 800 fires were traced to carelessness by campers and smokers. Notwithstanding the large value of the timber burnt, the total gross damage was comparatively small as compared with the average of $13,891,800 for the years 1920-24. We learn that His Excellency the Governor-General appointed by Royal Proclamation the days of April 18 to 24 as Save-the-Forest-Week, and during that period the desirability of co-operating for the protection of forests was placed before the public throughout the Dominion. This period was selected because it is the one in which a very large number of fires occur owing to the intensely combustible condition of the dead leaves, twigs, and dried herbage of the previous season. A fortnight later new growth appears, and the danger of fires is greatly reduced until dry weather sets in again.

Water Requirements of Plants.—In a lecture delivered by Dr. W. F. Bewley under the auspices of the Cheshunt Experimental and Research Station, the lecturer stated it was estimated that a single Sunflower plant evaporated so much as two pints of water on a hot day; an acre of Cabbages, 475 gallons in four months, and the Birch tree 100 gallons daily. Dr. Bewley stated that an insufficiency of water was the cause of the disease known as "blossom-end rot." This was a physiological disease, and was not infectious. When plants were growing rapidly they were very susceptible to this disorder which was caused either by a sudden drought or a stoppage in the water supply. According to Dr. Bewley, one of the chief effects resulting from an excess of water, is a soft growth which lowers the plant's resistance to disease.

Covent Garden Football and Charity.—A football match is to be played on Thursday, May 6, at the "Hare and Hounds," Lea Bridge Road, between the Covent Garden Athletic Club and the Whyte Hart Football Club, and the proceeds of the match are to go to Charing Cross Hospital. With such a good cause in view it is hoped that the match will be very heartily supported and that people who are not able to attend the match will assist by purchasing stand tickets, a few of which are for sale at 2s. 6d. each. The tickets may be obtained from the joint hon. secretaries, Mr. J. Thompson, Market Office, Covent Garden Market, or Mr. F. Conquest, The Whyte Hart Hotel, Drury Lane. The winning team are to be presented with a silver cup offered by Councillor Shortland, and medals are to be presented to members of the team by Mr. W. E. Childs.

Wigtown Flower Show.—The Committee of the Wigtown Horticultural Society decided, in view of the small competition at last year's show, to abandon the exhibition for this year, but a petition has been signed and presented to the secretary, asking that the matter be reconsidered. At the last show the prize money amounted to £52, and of this amount it is stated that four exhibitors won £31, showing that the competition was very poor. It was agreed to remit the matter to a committee and report at a future meeting of the members.

Appointments for the Ensuing Week.—Sunday, May 2: Wakefield and North of England Tulip, Society's meeting. Monday, May 3: Romsey and District Gardeners' Association's outing. Tuesday, May 4: Royal Horticultural Society's Committees meet (two days); Royal Caledonian Horticultural Society's meeting. Wednesday, May 5: Abingdon Horticultural Society's meeting. Friday, May 7: Orchid Club meeting; Accrington and District Gardeners' Association's meeting. Saturday, May 8: British Mycological Society's spring foray for London students, at Wisley.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Crystal Palace.*—At length the Crystal Palace is accessible to all the world. The anticipations of its friends are more than realised; the predictions of its enemies and slanderers are more than falsified. Few men ever saw, on English ground, a scene like that of Thursday, when Her Gracious Majesty declared the Exhibition To Be Opened; none have seen, here or elsewhere, such an assemblage of the results of the human industry as the vast building now contains. To the general press belongs the task of chronicling the endless examples of human ingenuity brought from all corners of the globe; our charge is far more humble. The raw materials with which the cultivator has to deal, or the instruments contrived to aid him in this task, form the greater part of what our readers will expect in the *Gardeners' Chronicle* and *Agricultural Gazette*. Grain, timber, textile plants, and other vegetable products, animal substances, and animal preparations, implements of husbandry, and the decorations which good taste and bad taste have contributed, in the form of vases, glass-work, fountains, and the like, will amply fill such space as our columns may afford from time to time. For to-day, we limit ourselves to an account of Mr. Fleming's contrivance for distributing boiling salt and water over ground walks; and to an account of some singular timber, sent from Van Diemen's Land, by Sir William Denison.—*Gard. Chron., May* 3, 1851.

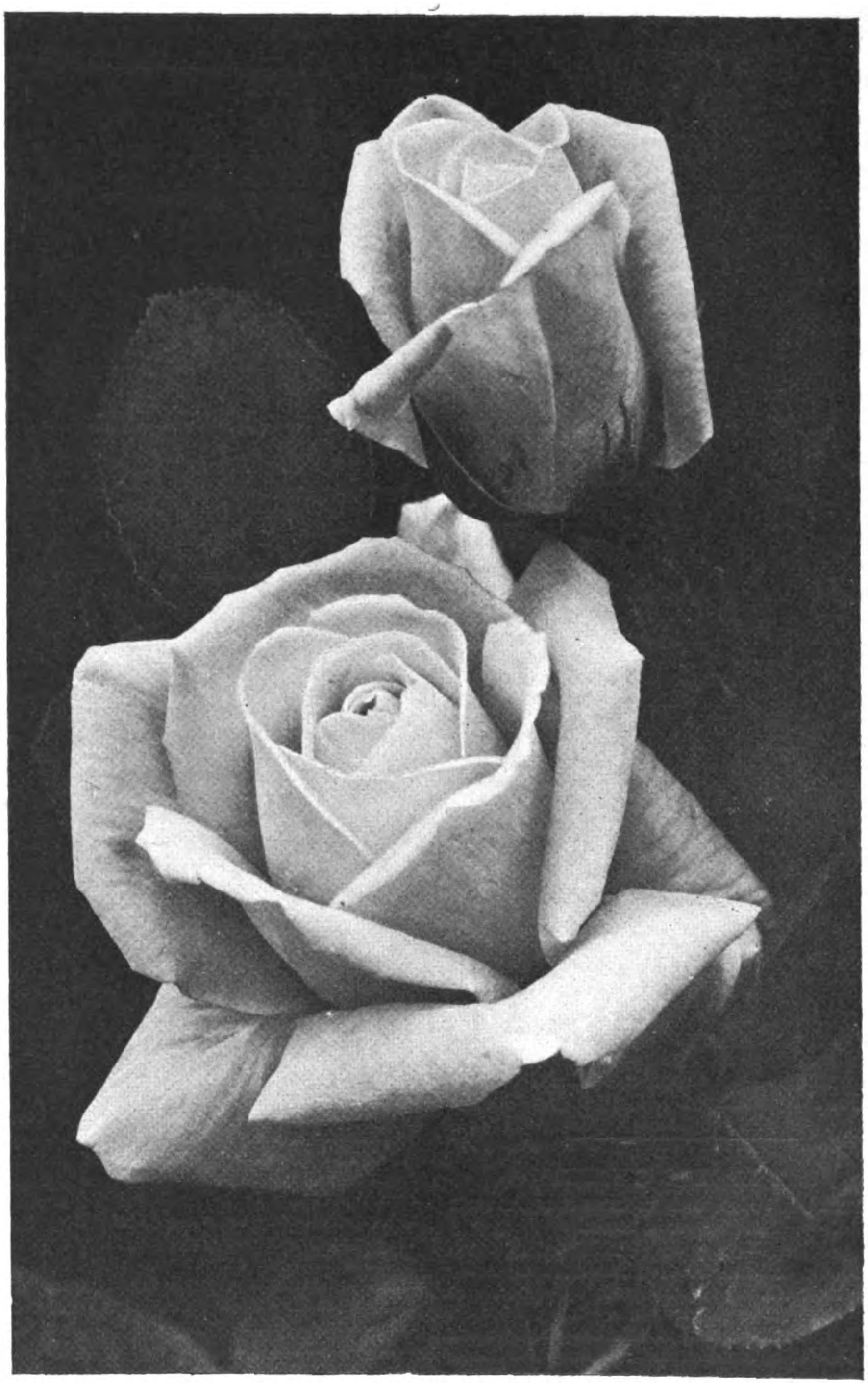


FIG. 160.—ROSE DAME EDITH HELEN.

N.R.S. Gold Medal, April 23. Shown by Messrs. Alex. Dickson and Sons (see p. 329).

Publications Received.—*The Culture of Vegetables and Flowers from Seeds and Roots*, by Sutton and Sons; seventeenth edition; obtainable from Simkin, Marshall, Hamilton, Kent and Co., Ltd., London, or Messrs. Sutton and Sons, Reading; price 7/6 net. *Every Man's Book of Garden Flowers*, by John Halsham; revised edition; Hodder and Stoughton, Ltd., Warwick Square, E.C.4.; price 6/- net.

The Week's Work.

THE ORCHID HOUSES.

By J. COLLIER, Gardener to SIR JEREMIAH COLMAN, Bart., Gatton Park, Reigate, Surrey.

Catasetum, Cycnoches and Mormodes.—After a decidedly long season of rest these interesting Orchids are commencing to grow afresh and should now receive attention in respect to repotting. Shake the plants out of the old compost, cut away all decayed parts, and place them in receptacles of moderate size, provided with plenty of drainage material. An ordinary flower pot with three holes close under the rim for attaching wire handles for suspending the plants is the most suitable receptacle. These Orchids grow and root freely in Osmunda-fibre broken into small portions, and this should be packed firmly around the bases of the pseudo-bulbs. Hang the plants near the roof-glass in the lightest position in the warmest house and let them develop quickly. After repotting, withhold moisture until the young shoots begin to develop roots from their bases, then apply water very sparingly. As growths advance and roots become plentiful the supply of moisture should be increased, and as the growths begin to develop into pseudo-bulbs the plants should receive copious waterings until their growth is completed. They should be exposed to full sunshine during the late summer and early autumn to ripen the new pseudo-bulbs thoroughly.

Phaius—Plants of Phaius simulans that have passed out of flower, and hybrids from this species that have failed to bloom may be repotted at this period. P. Cooksonii and the numerous varieties of P. Norman are most useful and decorative Orchids, succeeding satisfactorily where the conditions are suitable. They may be grown in an ordinary plant stove if a fair amount of humidity is maintained, and if placed in a position where they will receive plenty of fresh air without exposure to draughts. Members of this class of Phaius should not be exposed to sunshine during the spring and summer. They should be sprayed at regular intervals of about once every two weeks with a suitable insecticide in order to ward off attacks of thrip. Scale insects are also very troublesome to these plants, and these pests should be removed by careful sponging. A suitable compost consists of equal portions of good fibrous peat or A.1. fibre, turfy loam, some leaf-mould and crushed crocks intermixed. The soil should be made firm in the pot, which should be clean, and filled to about one-third its depth with drainage materials.

THE KITCHEN GARDEN.

By F. STREETER, Gardener to LORD LECONFIELD, Petworth Park, Petworth, Sussex.

Indian Corn.—As young Maize plants are very tender, I advise sowing the seeds in boxes or pots, and raising the seedlings in a temperature of about 60°. So soon as the plants are well through the soil, place them in sixty-sized pots, using the following compost: two parts loam, one part leaf-mould and one part sand. When established place the plants in cold frames to harden them before planting them out, which should be done when danger from frost is over. Keep a sharp watch for mice as they will destroy the seeds in the boxes in a single night.

Runner Beans.—This is another very tender vegetable in the early stage. If trenches have been taken out and thoroughly manured, fill them to within four inches of the top with soil and sow the seeds direct in them, sowing twice as thickly as necessary. Thin the plants to twelve inches apart each way. Another and much better method is to raise the earliest supplies in boxes, harden the seedlings gradually and plant them out when there is no danger from frost.

Early Potatos.—So soon as the early Potatos appear through the surface draw a little soil to the stems for protection. Plenty of new Potatos are now obtainable from the crops in frames. Successional batches should be given plenty of air on all suitable occasions, placing the lights in position at night if signs of frost are apparent.

Cardoons. — This seldom-grown vegetable should not be sown too early. The best system of culture is to take out trenches as for Celery, two feet deep and two feet wide. Break up the bottom soil and fill the trench to within a few inches of the top with well-decayed farmyard-manure. Place a few inches of soil on the dung, in which sow the seeds about one-and-a-half inch deep and eighteen inches apart. Sow several seeds together and thin the seedlings to the best specimens early in their growth. Cardoons require liberal treatment and plenty of water.

Box Edgings.—Where the edgings are composed of Box, they should be clipped neatly and evenly after showers whilst waiting to get on the ground. Box clips very much easier when wet than dry. Gravel paths should receive an annual application of an approved weed-killer and be kept rolled in showery weather.

FRUITS UNDER GLASS.

By T. PATEMAN, Gardener to SIR CHARLES NALL-CAIN, Brocket Hall, Hertfordshire.

Frame Melons.—The present is a most suitable time to commence the cultivation of Melons, either in heated pits or in frames on a hot-bed. Very good results may be obtained with Melons in frames. Make the bed of stable litter mixed with an equal part of leaves. Put the materials in a large heap and turn the latter about twice to allow the rank gases of fermentation to escape before finally making the bed. Ripe Melons may be obtained in this way from fourteen to sixteen weeks from the time of seed-sowing. If there is a maximum amount of sunlight in summer and the weather not too cold further heat will not be necessary, but on the other hand, should dull, cold weather set in when the Melons are nearing their flowering stage, it would be wise to reline the frames with fresh fermenting materials, such as newly-cut grass from the lawn. As a rule, the months set apart for the cultivation of Melons in frames are warm enough to ensure success. The seeds may be sown singly or otherwise in pots a day or so after the beds have been formed and the pots plunged to their rims. The seeds germinate very quickly from the strong heat provided by the fermenting material. The plants should be ready for planting by the time the heat has declined. Slugs are sometimes troublesome, therefore it will be wise to take precautions by sprinkling soot around the receptacles as a deterrent to these pests. The compost should be prepared in readiness to receive the young plants, and should be placed in position several days before planting takes place so that it may be warmed through. The most suitable compost for Melons is good, fibrous loam of a somewhat heavy texture, mixed with old mortar rubble, small charcoal and bone-meal. The ridges or mounds on which the young plants are to be grown should be made moderately firm to favour short-jointed growth, and to enable this to be done the compost should be used in a fairly dry state. Compost that is too light or too rich is not advisable for the cultivation of Melons, this tending to produce gross growth which is not desirable in the plant's early stages. When the crop of fruit is assured, the roots may be fed judiciously with liquid manure or other stimulants, but until this stage is reached, the grower should aim at obtaining short-jointed growth with good, hard foliage.

Thinning Grapes.—By the time these notes are published thinning of early Grapes will be fairly general. This operation needs to be done with great care. The berries should never be touched by hand, and care is also needed not to rub the same by the hair of the head which would remove the bloom, and it has been known to cause a mark or rust on the berries. To obviate touching the berries by hand use a forked stick to hold the bunches firmly when clipping out the berries. The most suitable time for thinning Grapes is during the early morning when the vinery is comparatively cool, and the berries free from moisture. Remove at the first operation all inside and stoneless berries, and after an interval of ten days or more, when it is plainly visible which berries are swelling freely, the bunches may receive their final thinning. The work should be completed before stoning takes place. At this stage of growth it will be wise to admit a small amount of air at night by means of the top ventilators.

THE FLOWER GARDEN.

By F. C. PUDDLE, Gardener to LORD ABERCONWAY, Bodnant, Taly-Cafn, North Wales.

Bedding Plants.—If not already done, all bedding plants which have been grown in the houses should be transferred to cold frames or other forms of shelter, in order that they may become thoroughly hardened before they are planted in the beds. If the plants are brought out of warm houses, the frames should be kept close, shaded lightly for the first few days, and the plants gradually accustomed to light and more airy conditions, until they are sufficiently hardened for the lights to be removed entirely during mild weather.

Flowering Shrubs.—Certain spring flowering shrubs are benefited by a judicious thinning of the weak and old shoots immediately after flowering to allow more room for the young growths to develop. Forsythia suspensa, Deutzias, Philadelphus, Weigelias and Lilacs may be pruned as they pass out of flower, but flowering shrubs which bear ornamental fruits or berries during the autumn should not be shortened at this season.

Herbaceous Borders.—Many plants in the borders require staking, and this important operation should be done with great care, for a well-planned and well-planted border may easily be spoiled by careless staking and tying. Although support should be given betimes to all plants which require it, no attempt should be made to stake all the plants in a border in one operation, for nothing makes a border more unsightly, whilst the beauty of early flowering plants will be completely marred if they have to flower amidst a forest of sticks. Tall, late-flowering subjects, such as Asters and Heleniums, should, if possible, be afforded small sticks to support the young growths; the necessary tall sticks may be placed in position at a later period of the plant's growth. Sticks with light, twiggy branches, such as are generally used for staking Peas, are suitable for supporting the majority of hardy herbaceous plants, and where neat sticks of this kind are obtainable they should be used. Three or four sticks may be allowed for each clump, and the twiggy branches should be tied together, when they will form efficient supports, with the danger of chafing of the plants by rough winds reduced to a minimum. Any trimmings from the sticks may be used for the dwarfer plants. If, however, straight sticks only are available, the stems of the stronger-growing subjects should each be neatly tied to a separate stick. Other clumps may be staked by placing the requisite number of sticks around the clump and one in the centre. In addition to bands of string around the outer sticks, other strings should be placed radiating from the centre stick, so that small compartments are formed rather than a plain ring; this will prevent the plants being blown on one side during windy weather. In no case should the tops of the sticks be drawn towards the centre or a bundling effect will be produced; every effort should be made to have all supports as unobtrusive as possible.

HARDY FRUIT GARDEN.

By W. AUTON, Gardener to VISCOUNT ELVEDEN, Pyrford Court, Woking, Surrey.

Thinning Fruits.—Seldom have fruit plantations presented a more charming picture than in the present season. The floral beauty of the Pears, Plums and Cherries has already passed and in many cases the ground is strewn with their petals. Mid-season Apples are now at the height of their beauty, and varieties which in some years have not finished their flowering until well into June cannot resist the general forwardness of the season, and are fast reaching it. Thus the season of thinning begins and where fruits, particularly those on walls and espaliers have set freely, partial thinning should be carried out immediately they have attained sufficient size to enable the grower to determine the best specimens to retain, deferring the final thinning in the case of stone fruits until stoning is completed. The number to leave on any tree must be determined by the size and condition of the individual tree. In the case of Peaches and Nectarines a reasonable crop would be one fruit per square foot of surface, but generally it is good practice to crop fairly heavily, when a good crop can be secured, as trees bearing light crops are apt to make gross and unfruitful wood.

General Remarks.—Grease bands may now be removed from the stems of fruit trees and burned. Give attention to grafts, and where clay has been used keep it moist by wrapping with moss to prevent cracking. If it can be seen that stock and scion are uniting it is better to leave the material on until perfect union has been effected, but if there are signs of the ties becoming too tight it is wise to remove the clay carefully, loosen the binding and re-tie. Keep the surface clean in the Nut plantation, and remove strong suckers from the bases of the bushes, as these rob the fruiting wood of nourishment. Any protective material which has been in use for wall trees should now be removed, as, the flowering stage being passed, no further damage from frost can ensue, and it is essential to have free access to the trees for disbudding and cleansing purposes.

PLANTS UNDER GLASS.

By JOHN COUTTS, Assistant Curator, Royal Botanic Gardens, Kew.

Curculigo recurvata.—This graceful plant is very useful for house decoration, being very effective for furnishing tall receptacles or as a centre-piece for groups of smaller plants. Its successful cultivation presents no difficulty as it thrives in an ordinary plant stove, and grows freely in a compost consisting of equal parts of lumpy loam and peat mixed with sufficient sand to ensure proper drainage. There are two fine varieties of this plant, viz., striata and variegata, but I am afraid both are somewhat scarce in cultivation at the present day.

Roupala Pohlii (syn. corcovadensis.)—This beautiful foliage plant deserves to be more generally grown for decorative work, but its merits seem to be almost entirely unknown to present-day gardeners. It is generally described and treated as a stove plant, but it grows freely in a cool greenhouse; indeed, I have grown a plant for over two years in a cold, north room, and during that time it has developed normally and never lost a leaf. It makes perfect specimens in six-inch pots; plants in large receptacles are ideal subjects for decorative purposes in large rooms or saloons, whilst they are equally effective when planted out in a bed or border in the conservatory. Altogether it is a very beautiful and distinct plant, with its glossy green leaves, and young shoots covered with a beautiful, rich brown tomentum. This plant is propagated by means of cuttings made of shoots about six inches in length; even the young wood is extremely hard, and cuttings usually take several months to root. The cuttings should be plunged in a warm propagating case furnished with plenty of bottom-heat. Once rooted—as already indicated—the successful cultivation of this plant presents no difficulty. No doubt the length of time it takes to root has put it out of count as a market plant, but the same difficulty is found with Araucaria excelsa, which is largely grown for decorative work.

FOR NORTHERN GARDENERS.

By A. T. HARRISON, Gardener to the MARQUIS OF AILSA, Culzean Castle, Maybole, Ayrshire.

Carrots.—Seaweed is a good fertiliser for Carrots, as the soil in which this crop is grown is nearly always of a light, sandy nature, and no manure gives better results. Some cottagers in this neighbourhood have produced annually for very many years good crops of Carrots with no other manure than Seaweed and a light dressing of salt when making the ground ready for sowing. Seeds of early and main-crop Carrots should be sown now in shallow drills about twelve inches apart. Cover the seeds lightly, and take the usual precautions to keep birds from disturbing the seeds.

Early-flowering Chrysanthemums. — Plants rooted from cuttings inserted early in March are ready for their summer quarters; these Chrysanthemums are mostly planted in borders for supplying cut-flowers, but they are also used to great advantage in beds in the flower garden, and their extended use in this direction might be tried without militating against the display usually met with there. When planting for cut flowers only, it is advisable to keep each variety separate, as by thus doing not only are the flowers of one variety more expeditiously culled, but they may also be protected by temporary sashes, if inclement weather prevails at their period of flowering. Moreover the roots may be more easily identified when they are lifted, as there are few plants less easy to distinguish from their foliage alone than Chrysanthemums.

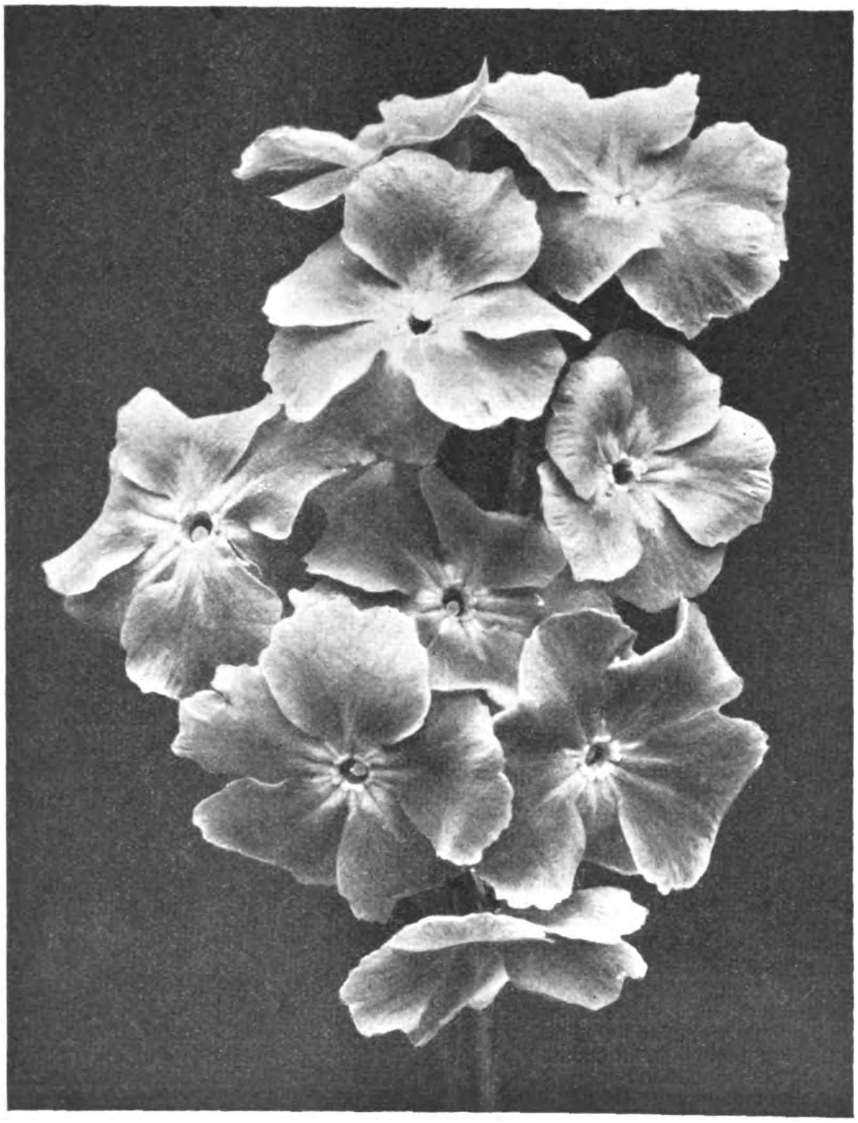


FIG. 161.—POLYANTHUS GREENWAY'S GLORY.

R.H.S. Award of Merit, April 20. Flowers velvety, Venetian-red, with orange centre. Shown by Miss C. Christy, Boyton Cross, Chelmsford (see p. 313.)

Gladioli.—The corms, if not already planted, should be put in their summer quarters at once. The early-flowering sorts, of which Prince of Wales may be taken as an example, are particularly effective in large beds or in masses of one variety, and where the display requires to be extended, it is a good plan to interplant with one of the later sorts, such as Golden West, because by the time the flowers of the former are faded, those of the latter will be just commencing to open, and the faded blossoms and flower stalks may be removed without causing a gap which would need to be filled by some other kind of plant held in reserve for this purpose.

TREES AND SHRUBS.

RHODODENDRON DOROTHEA.

AMONG the many beautiful Rhododendrons that received recognition from the Royal Horticultural Society in the spring of 1925, few received so much admiration as R. Dorothea shown at Vincent Square by T. N. Lowinsky, Esq., Sunninghill, on May 5, when it gained the Royal Horticultural Society's Award of Merit. This splendid hybrid produces large trusses of so many as fifteen widely expanded blooms. The colour is a very pleasing shade of pale blush, and there are a few brown spots on the upper segment. R. Dorothea, the subject of the Supplementary Plate accompanying this issue, is the result of crossing R. Aucklandii rosea superba with R. decorum, and is one of numerous handsome seedlings raised in Mr. Lowinsky's garden at Tittenhurst, Sunninghill, Berkshire, where an unusually fine collection of Rhododendrons is cultivated with great success.

Mr. Lowinsky informs us that the plant is hardy at Tittenhurst and that the flowers will be expanded during the coming week.

RHODODENDRON NUTTALLII.

THE specimen of Rhododendron Nuttallii shown in the enclosed photograph (Fig. 162), was a remarkable sight when in flower here recently. The plant is five feet high and five feet across, growing in a tub two feet in diameter. It carried no fewer than fourteen clusters of from five to seven flowers each. It is surely most unusual for a plant of R. Nuttallii of these dimensions to bear so many trusses of bloom at one time. As a rule, such a plant carries three or four corymbs at the most. Perhaps the wonderfully warm and sunny weather in June of last year was responsible for this fine result; it was certainly an ideal month for the development and perfecting of growths and flower buds on Rhododendrons, more especially those which were well supplied with moisture and nourishment at the roots during the hot weather. The photograph was taken by the Countess of Bessborough. *T. E. Tomalin, Stansted Park Gardens, Emsworth, Sussex.*

BERBERIS PRUINOSA.

THIS species was introduced from China by the Abbé Delavay in 1894, but it was very little known in this country until some years later. I always consider it among the most distinctive of the Barberries, and it always stands out prominently in any collection. The plant grows six feet to eight feet high, probably more in some gardens, and the gracefully-arched branches, armed with three-parted spines, are rather sparsely furnished with grey-green leaves in clusters of from three to five. The latter are about two inches long, usually obovate and set with small spines; the texture is hard and leathery.

The bright yellow flowers are larger than those of most members of the genus, and they are very delightful in spring, hanging in clusters from the base of each tuft of leaves. These are succeeded by black fruits covered by a blue-white meal, and it is by no means uncommon for the latter to remain on the bush throughout the winter.

B. pruinosa is quite hardy, evergreen, and succeeds under average conditions. The beauty of the shrub is seen to the fullest advantage when it is planted in a somewhat elevated position. *A.*

RHODODENDRON CHEIRANTHIFOLIUM.

UNDER the above name, I acquired, some time since, a Rhododendron which, though said to be an old variety (or hybrid) is now certainly very uncommon. One of the characteristic features of this shrub is its loose habit of growth, the long, rather slender branches being unusually bare of leaves towards the extremities, which latter terminate in a close rosette of small leathery, pointed leaves, suggestive, as the name implies, of the tufts of foliage at the top of a worn-out old Wallflower plant.

The leaves of this interesting shrub are olive-green with a distinct infusion of yellow, especially in winter. The flowers, which appear in small, compact clusters in the centre of each of the above-mentioned rosettes in the later spring, are beautifully crimped and of a delicate blend of rose and white.

The height of the shrub is about four feet to five feet. If R. cheiranthifolium is an old-time hybrid why, one wonders, is it so seldom mentioned in the lists, and so rarely seen in gardens? It is in every respect a most charming subject, with all the refinement and distinctiveness of a species, and perfectly hardy. *J.*

[Bean in *Trees and Shrubs Hardy in the British Isles* gives cheiranthifolium as a variety of R. ponticum.—EDS.]

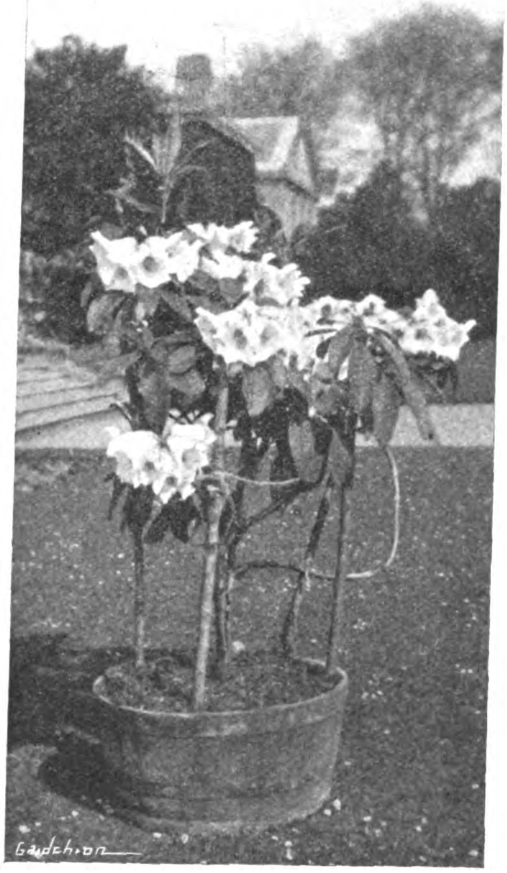


FIG. 162.—RHODODENDRON NUTTALLII AT STANSTED PARK, EMSWORTH, SUSSEX.

RHODODENDRON LEDIFOLIUM VAR. PLENUM.

SOMETIMES listed as R. narcissiflorum (which is the double-flowered form of R. ledifolium) and not infrequently sent out labelled Azalea Yodogawa, the subject of this note is a peculiarly pleasing and distinct little shrub. It has smaller and sparser foliage than the type species, a somewhat upright habit with very slender branches, and these features, together with the fact that it is practically deciduous, might lead anyone to regard it as a distinct species. Instead of being white, the very large, funnel-shaped, double flowers, which are produced singly, or in twos or threes, at the tips of the often drooping twigs, are a bright rosy-lilac. I have found R. ledifolium var. plenum perfectly hardy; it is a reliable bloomer, the blooms being as fragrant as those of the type and, opening a little later than those of the latter, they more often escape spring frosts. *A. T. J.*

MALVASTRUM PHOENICIUM(?)

THIS is an attractive shrub, attaining a height of about six feet here, but it probably grows taller in milder districts. The ruddy stems are upright, finely tapered and willowy. They branch freely and the deeply-cut, Mallow-like leaves are a fresh, glossy green. The flowers which appear in spring and continue throughout the season, are bright mauve, approaching crimson, cup-shaped, and three quarter-of-an-inch across. These are borne in the greatest profusion and set seeds, but whether the latter are fertile or not I cannot state.

M. phoenicium is, unfortunately, not quite hardy here. It will come through any average winter with, say 12° of frost, but the 20° of last December appears to have finished off all my specimens. I am, however, hoping that they will break from the base later. As cuttings strike readily one may always winter a reserve stock in a frame. Growth is rapid and plants begin to bloom while quite small. We have found this plant an excellent subject for very hot, dry banks of poor, stony soil. *N. Wales.*

ERICA AUSTRALIS VAR. MR. ROBERT.

FROM time to time reference has been made in *The Gardeners' Chronicle* to a white form of Erica australis, but as I have so far failed to find any special description of it, I felt it almost incumbent on me to describe such a splendid Erica which each year elicits unbounded praise from those who see it in flower. Of course, a white Heath appeals to people from a sentimental point of view, but apart from that it is a most desirable Erica and ought to be acquired wherever Ericaceous plants are appreciated and grown, especially in the gardens where E. australis succeeds, for it is considered one of the least hardy in the genus.

The plant under notice has been in its present position at Kew for several years and is now six feet or so in height and equally proportioned, not showing the lax habit of the type, possibly because when young it was used as a stock plant, and cuttings were taken whenever available. Strong, soft growths made by young plants have been slightly frozen, but the short, flowering twigs have escaped, and there has been very little damage during the past few seasons. E. australis var. Mr. Robert is like the type, except for colour, which is clear white with yellow anthers.

This Heath is not easy to propagate, and from repeated trials only a moderate number of cuttings rooted. Of the first that were inserted in a six-inch pot filled with sand and kept indoors, only two rooted, and these are making good shrubs. Propagation under handlights, from short cuttings, may prove better, although I am inclined to advise the use of cuttings three inches or so long, inserted at the end of August. Such cuttings would include present and part of last year's growth. *C. F. Coates.*

ORCHID NOTES AND GLEANINGS.

LAELIO-CATTLEYA DOROTHY HEYWOOD.

MR. C. WRIGHT, gardener to the Hon. Mrs. N. C. Rothschild, Ashton Wold, Oundle, sends a fine, two-flowered inflorescence of a showy Laelio-Cattleya raised between Laelia Pacavia (purpurata × tenebrosa) and C. Warneri, a batch of about fifty of which, raised recently at Ashton Wold, is now approaching the flowering stage.

The flowers closely approach those of C. Warneri in form and colour, the sepals and petals being bright rosy-mauve, and the broad lip purplish-crimson. The only signs of the Laelia parents are the more tubular base to the lip and some thin, purple lines running into the disc of the lip.

Laelio-Cattleya Dorothy Heywood was raised before by E. de Quincey-Quincey, Esq., of Chislehurst, in 1909, and recorded in *The Gardeners' Chronicle* of that year.

INDOOR PLANTS.

PERPETUAL-FLOWERING CARNATIONS.

Where a house can be specially devoted to these Carnations blooms may be had all the year round. The cuttings from which a stock is propagated should be obtained from good, healthy plants, and when there is a limited number of these Carnations grown it is advisable to reserve special plants for providing the cuttings; for this purpose some of the old plants that are healthy and clean should be cut down not later than the first week in September. In shortening these plants do not cut to old, hard wood, otherwise the plants will not break into young growth freely. The plants should be cleared of all dead foliage and put into a cool house; after a few days they should be syringed on all favourable occasions, especially in sunny weather. So soon as they show signs of making new growth, they should be removed to a light, airy house, allowing a little fire-heat, and keeping the ventilators open night and day. By the beginning of November there should be plenty of young, healthy growths from which to select cuttings. I find these are quite as good as those from young plants.

The time for rooting the cuttings varies. I am guided mostly by the pressure of other work, but I like to strike them about the first week in November. The cuttings are inserted in sand in square pans holding fifty each, and the pans placed in a long, portable frame on a greenhouse stage over the water-pipes. A sheet of glass is laid on the top of the pan for a week or ten days and then gradually tilted until, when the cuttings have formed roots, it is removed altogether. So soon as the plants are rooted sufficiently they are placed singly in two-and-a-half-inch pots. For the first potting the compost should consist of two-thirds good, fibrous loam rubbed through a half-inch sieve, the remainder old mortar rubble, fine charcoal, a little manure from a spent Mushroom bed, and a sprinkling of coarse sand. After they are potted, return the plants to the same house for a time, and so soon as they have recovered from the root disturbance, place them near the roof-glass. When they have formed roots freely, remove them to a cool house furnished with a little fire-heat night and day.

By the beginning of March the young plants will be ready for transferring to four-inch pots, using the compost in a little coarser condition. After they are potted, return them to a house having the same temperature as before. Early in April they will be making strong growth and most of them will be developing side growths near the base. At this stage the leading shoots may be pinched to cause the side growths to develop strongly. At this time of the year very little fire-heat will be required. As the plants advance in growth a neat Bamboo cane, about nine inches in length, should be put to each, and the growths tied loosely, just sufficient to keep them in an upright position. They will soon be large enough to transfer to five-and-a-half-inch pots, using similar compost to that advised for the earlier potting, only in a rather lumpy state, with the addition of wood ash, fairly fresh horse droppings and a sprinkling of bone-meal and grit. The potting should be done fairly firmly. Return the plants to a cool, airy house or frame and stand them on a coal-ash base. On sunny days a light syringing both morning and evening, will help to keep the plants free from red spider.

The stopping of the growths should not be completed on one occasion, but periodically, and with judgment, so that the plants do not receive a check to growth. The final potting, in seven-inch pots, should be done early in June. The pots should be thoroughly clean and well-drained, covering the drainage material with some of the rougher portions of the compost to prevent the finer particles of soil washing down to and choking the drainage. The compost should be in as lumpy a condition as can be successfully used. The plants should be potted very firmly, returning them to their summer quarters where they can be protected from heavy rains.

These Carnations should be watered carefully at all times, always giving the plant the benefit of the doubt. On hot, sunny days a slight shading is necessary, and the syringe should be used morning and evening. Keep the layer of ashes on which the plants are stood, damp. Watch carefully for green fly, and fumigate the house directly the pest is detected. *E. Neal.*

IXORAS.

Ixoras are amongst the most useful and magnificent of all stove plants, and although they are not nearly so widely grown in these days as was the case a few decades ago, one sometimes sees large, well-developed specimens in robust health which compel admiration. The flowers are most valuable for use in choice bouquets and for drawing room vases, whilst small plants carefully hardened, remain in good condition, in a comparatively low temperature, for a considerable time and may be employed for indoor decorations. It is, however, in the stove or as exhibition specimens that these plants show to the greatest advantage.

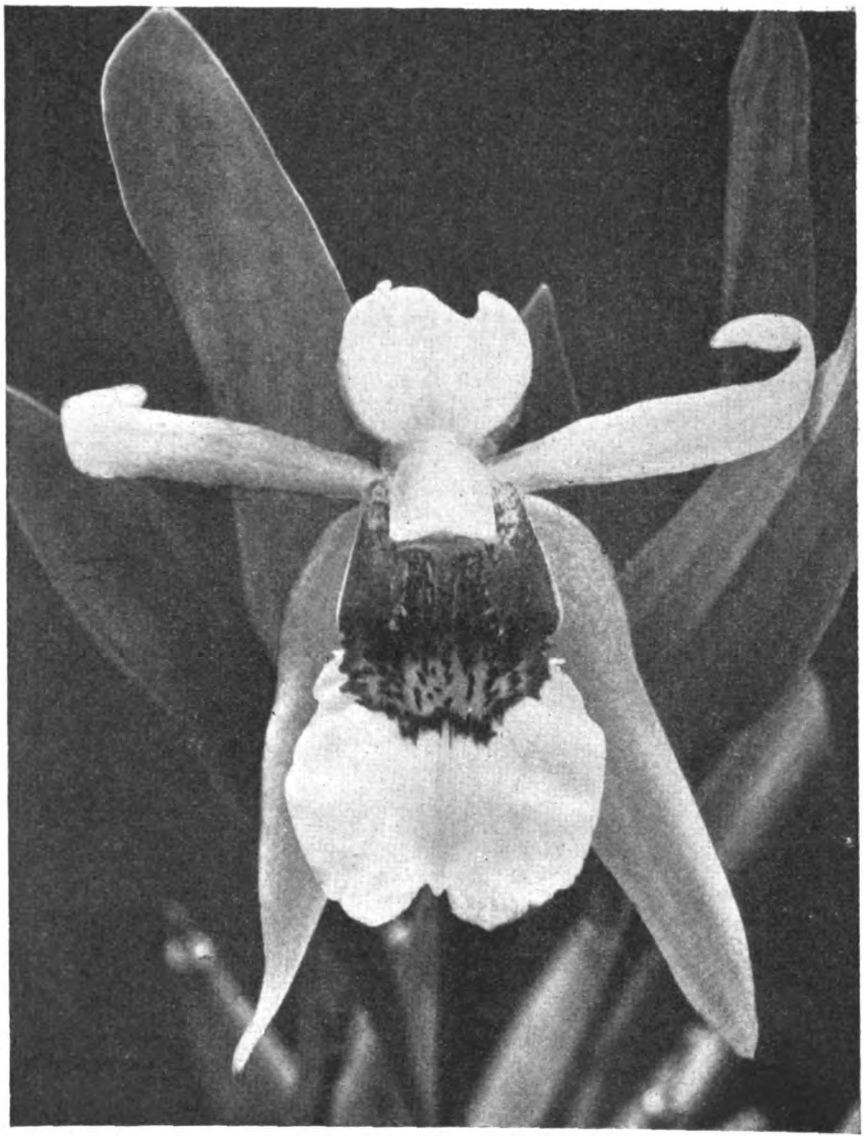


FIG. 163.—COELOGYNE LAWRENCEANA VAR. SUPERBA.

R.H.S. First-Class Certificate, April 20. Flowers green, white, yellow and brown. Shown by Messrs. Sanders (see p. 312.)

The cultural requirements necessary to secure healthy and well-flowered specimens are a comparatively high temperature, abundance of atmospheric moisture during the growing season, and a sound, yet light compost; added to this a fair amount of light is necessary during the autumn to ensure a thorough maturation of the wood. Light shading is necessary during the growing period, as if the tender growths are exposed to brilliant sunshine they will suffer severely.

Young plants being grown on may be potted at any time as is necessary, but large specimens usually receive their annual repotting early in the year previous to being started into growth. Bottom heat is of hardly less importance in promoting healthy growth than atmospheric moisture, therefore, when the plants are being started they should be stood, if possible, on a warm base. Vigorous syringing should be practised both morning and afternoon during the whole season of growth until the flowers begin to expand. When the plants are in full growth afford the roots water liberally, but during the winter keep the soil only moderately moist.

Mealy bug and scale are both very partial to the plants, and if allowed to spread they will cause much labour and trouble in keeping them in check.

Propagation is readily effected from cuttings; short-jointed growths taken so soon as the season's growth is made, strike very freely. Insert them singly in thumb pots, stand the pots under a bell-glass in a warm corner of the stove and shade from sun. The cuttings will root quickly, and with ordinary attention will make strong plants the following year. *A. P. C.*

ALPINE GARDEN.

ANDROSACE CARNEA VAR. LAGGERI.

One of the first Androsaces to flower, and also one of the choicest, is Androsace carnea var. Laggeri.

About the middle of March a number of rosy-pink flowers open, each about a quarter-of-an-inch in diameter, and carried on three-inch stems. The flower stems arise from the tufted rosettes, which consist of a number of dark green, very narrow leaves, the longest of which rarely exceeds half-an-inch. The plant is a native of the Pyrenees, and is perfectly hardy in this country. Although not entirely adverse to a sunny spot it is certainly happiest where partial shade is provided, but a shaded, damp pocket should be avoided. This Androsace likes sandy, gritty soil and is undoubtedly well adapted for the moraine. Cuttings taken in July and inserted in pots containing a very sandy compost will provide a means of increase, but as the growths are so very short some difficulty may be experienced in making them firm in the pot. The seeds, which are best sown soon after harvesting, should be distributed very thinly in pots containing sandy soil with a little peat dust and crock dust added, and they should be covered very lightly. The hardier the seedlings are grown the better. *W. Howell, High Elms Gardens, Watford.*

OXALIS ADENOPHYLLA.

After an unusually prolonged season of bad weather for alpine flowers, it is pleasant to observe how well the lovely Oxalis adenophylla has encountered and withstood all the vicissitudes of a most trying winter. It is a delight to see its lovely silvery foliage looking happy and healthy, and to observe the promise of plentiful bloom when the time arrives for its exquisite pink blooms to open in the sun. Here it is on the level ground near the edge of the border, but with some stones embedded in the soil about it, and treated with a little leaf-soil, sand and grit, a fare and a condition which appear to suit it admirably. It is growing in full sun, but, reasoning apparently from resemblance and habit, many grow it in shade. This suits O. enneaphylla, but does not satisfy O. adenophylla, which appears to delight in sunshine. No more charming flower has been introduced for the rock garden or for the front of the border for many years, and, so easily is it cultivated, that far more folks might grow it with great profit in the way of pleasure to themselves. *S. Arnott.*

VERONICA SATUREIOIDES.

This Dalmatian species is always one of the first of the creeping rock-garden Veronicas to come into flower. If it does not rival in colour V. saxatilis and some others of its near kindred it is a useful little plant, very permanent, easy to grow, and hardy, making a mat of woody stems and leathery, dark green, scalloped leaves which it adorns with short, erect spikes of flower that are deep violet-blue set off with vermilion anthers. Its flowering period is generally longer than that of most allied Veronicas, often extending from March to June, and an autumn crop of blossom is not unusual. V. satureioides is an appropriate subject for carpeting a sloping ledge or draping a sunken rock. It is not particular as to soil or location, but enjoys a light, gritty medium and full exposure. The colour of its flowers is greatly enhanced when seen against something white, such as a dwarf Iberis or Hutchinsia alpina, and if the plant is almost on a level with the eye so much the better. *J.*

HYPERICUM BALEARICUM.

Although this shrub has a reputation for tenderness, I have never known it suffer from frost. During the past winter old plants and young rooted cuttings were entirely unprotected during the cold spell which gave us 20° of frost on several consecutive nights, and not one was injured. Many Cistuses, shrubby Veronicas and even Brooms near them were seriously cut. H. balearicum, an evergreen, came to us from Majorca, over two hundred years ago. It makes a pretty, neatly-shaped, close-habited bush of about two feet high; the dark green leaves are waved or crimped at the margins and covered by warty excrescences. Flowers are freely produced all the summer and autumn, these being golden-yellow, an inch across, sweetly-scented and centred with a prominent tuft of stamens. As it seems quite indifferent to drought and thoroughly enjoys all the heat it can get, this is a good dwarf shrub for dry, sunny banks, and it will prosper in the poorest of soils. Propagation is very simply carried out by cuttings taken in September and struck in a cold frame. Plants thus raised will bloom in two or three years. *N. Wales.*

BULB GARDEN.

DOUBLE DAFFODILS.

Man is a creature of custom and lives in a groove. As most Daffodils we have seen are single, we like the single flowers. True, Telemonius plenus appears early in the season, and then follow hosts of Incomparabilis, Leedsii and Poeticus varieties. We love double Roses, double Dahlias and double Chrysanthemums because we are accustomed to seeing double ones. But the fact remains that double Daffodils create far greater effect either in garden, meadow or vase, and, when cut, last longer than the singles.

Many years ago, certainly over twenty-five, I looked round and said to myself, "What line of Daffodils are raisers *not* going in for?" and I found that no one cared for double sorts, nor was anyone trying to raise them. In fact, many people thought it was practically impossible to get double Daffodils to seed. I heard once of someone getting two seeds from a double variety, but never heard what results were obtained. It is no secret that if pollen is taken from a double Daffodil (for they have pollen sometimes)and put on to a single,and fertilisation ensues (which it does very seldom), a batch of resultant seedlings may yield two or three double varieties. I saw the original bed of seedlings in Mr. Engleheart's garden which were the result of crossing Narcissus Telamonius plenus on to N. poeticus ornatus. I suppose there were 500 to 600 bulbs, and three were double—Argent and Dubloon, and another which I cannot remember. Many a batch of flowers have I crossed and had practically no seeds, but perseverance was rewarded, and after some eight years or more, I produced Royal Sovereign, which obtained an Award of Merit. Most of the stock of this was lost during the war from neglect and disease, but I had a letter from a friend in New Zealand lately who wrote that it is the finest double out there, and grows magnificently, as does Red and Gold, which is a flower similar to Feu de Joie. Then there were in this first batch of doubles some brilliant red colourings obtained from an unusual batch of N. poeticus poetarum, which I bought from the late Mr. Pope of King's Norton, who said he obtained them from Holland. N. p. poetarum crossed with N. Telemonius plenus gave some early doubles, such as Orange Dubloon, Volcano and others.

Now, just as N. Telemonius plenus grows well in the grass, so this first series of crosses have their likes and dislikes; the bulbs dislike heavy ground, but grow well on gravel or in sandy places. So to improve the strain, I embarked on what we call secondary crosses. Taking the pollen of these double seedlings and putting it on Giant Leedsii or Incomparabilis or Poets, I produced flowers with longer stems and stronger constitutions.

For many years I thought that the pollen of the old Orange Phoenix might produce good results, so year after year I bought bunches of these flowers in the market, but with no results whatever, until one day there appeared the most lovely double yet raised, with broad, flat, creamy perianths, and bright-red cup segments; this I named Mary Copeland, and it has received both the Award of Merit and First-Class Certificate in London and Birmingham respectively.

Time after time, when showing my doubles, I have been intensely amused to hear the remarks of the passers by: "I don't like double Daffodils, I much prefer single ones." But during the past year or two I have noticed the tide turn; such remarks are fewer, visitors stop longer to look and note a double Daffodil, and whenever I have shown Mary Copeland, people have been obliged to acknowledge what a beautiful flower it is.

There is now on the market a very pretty variety which I called Milk and Honey, of cream and pale lemon colours; and one called Ragged Friar is much admired. Irene Copeland also is quite a distinct early double on the lines of the Queen Anne's double Jonquil, but, of course, much larger, with a very strong stem and almost white flower. There are others which are not as yet on the market but will doubtless some day take their place as things of beauty. Not being a market grower but only an amateur, I do not know, but I have imagined that good red double Daffodils would always be much in demand; but however, the point is, I feel that what I set out to do long, long ago, I have, to a large extent, achieved. *W. F. M. Copeland.*

NOTICES OF BOOKS.

Plants from Seed.*

It is not often that a book is specially devoted to the raising of plants from seeds; but this one will certainly prove of service to amateurs who are fond of sowing seeds, which give them many plants to deal with. The book represents the accumulated knowledge of thousands of experiments by amateur and professional gardeners, and those who master the contents will save themselves many failures and much expense. The directions for freeing the seed-leaves of the shell of the seeds is necessary in some cases, but it is unnecessary in the case of Onions, which perplex some amateurs to our knowledge. In some cases it is due to too shallow covering of the seeds. The members of the Dipsaceae have special contrivances for freeing themselves of the complicated seed (fruit) in germination; and the Cucurbitaceae have a similar contrivance for getting rid of the large shell. The errors in nomenclature are not numerous, but Chrysanthemum coronarium is not the Ox-eye, nor is it the annual that gives the white flowers with purple and crimson zones; C. carinatum is the plant described. Achillea millefolia should be A. Millefolium. Convolvulus major and C. minor are antiquated catalogue names that in these days should be altered to Ipomoea purpurea and C. tricolor respectively. Some amateurs are deterred from getting C. major, because they have an idea it is a plant with wandering rhizomes and one they cannot eradicate. Matthiola tristis is a night-scented Stock, but M. bicornis is the catalogued one. We would prefer to treat Helichrysum as a half-hardy and not as a hardy annual. It is no more necessary for Scottish gardeners to sow Sweet Peas under glass than it is for those in England.

There is a good chapter on the special requirements of certain perennials and another on the sowing of alpines for the rock garden. It is a novel idea that some of them may be benefited by a covering of snow after being sown in the autumn. Frequent advice is given as to the sowing of certain seeds so soon as they are ripe, because they germinate much sooner, instead of lying in the soil for twelve months or failing altogether.

One of the most novel and interesting chapters is that dealing with the rearing of aquatic and bog plants from seeds; and the directions for gathering ripe seeds in another chapter should prove of service to the amateur because seeds of water and bog plants must be gathered, and can seldom be bought. Other useful chapters deal with half-hardy plants, Ferns, trees and shrubs, and the longevity of seeds.

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* *Plants from Seed.* By A. J. Macself. Illustrated in colour, half-tone and line. Thornton Butterworth, Ltd., 15, Bedford Street, London, W.C. 2. 1926. Price 6s. net.

An illustration of the covering of Pea seeds by means of a draw hoe might have been improved by showing the gardener using the back of a rake for the purpose, as being more speedy The professional gardener also uses the back of the rake for patting down the soil on the seeds. The book contains four coloured, eight half-tone and twelve line illustrations. The editing and printing are excellent.

Soils and Fertilisers.†

The above is No. 10 of a series of home garden books intended to enlighten amateurs who cultivate their own gardens for brightening their homes or supplying the kitchen with useful vegetables. Needless to state, the principal classes of soil to be met with and their origin are discussed. The principal enemies of plants come under review, and the illustrations will serve to make cultivators familiar with them. By some mistake or other the names of the Summer Chafer and the Garden Chafer have been transposed.

The old error of the capillary tubes in the soil has been repeated and even illustrated (probably for the first time). There are no capillary tubes whatever. The lower particles of the soil hand the moisture on to those above them ; and the waste of moisture from the surface is merely checked by the loosening of the surface soil, by digging and trenching, which make the spaces between the particles of soil larger. Apart from these two errors the text is usually correct, instructive and elucidating.

The interesting story here that a Chiltern farmer ruined the fertility of his soil by removing all the larger stones from his stony, gravel land has its counterpart elsewhere in the farmer who said that the soil would not be deep enough if he removed the stones !

In a chapter on moorland and sandy peats the author advises the tenants of such soils to specialise in peat-loving plants ; but it is very difficult to persuade beginners to forego their favourite Roses, Carnations, Sweet Peas, etc. However, the author supplies information that will improve such soils at considerable expense.

One of the commonest failures, not merely of peat land, but in narrow town gardens, is to make a permanent lawn with Fescues and other fine-leaved grasses.

The lack of light and air is as important as soil, whatever it may be. In a case coming under our notice, an amateur accused the seedsman, not for the fine grasses that died out, but for putting Rye Grass in the mixture, which lived. Advice against attempting the impossible is always hard to accept. The common error on the part of beginners that old, rotted manure is essential for the garden is here corrected. A chapter on useful manures deals with spent Hops, fish meal, seaweed, hoof-parings, blood, sewage, shoddy, bones, wood-ash and guano and should prove useful to those concerned, if they give the matter their careful consideration. Enquiries are often made concerning chemical compounds and other rubbish that contain no plant food, and which the enquirers desire to use for manuring their gardens, simply because they can obtain such things cheaply or for the mere removal.

In a chapter on green manuring, the orthodox Lupins, Vetches and Mustard are advocated. All annual weeds are allowed, if not in seed, with the recommendation to remove and burn Docks, Dandelions, creeping Thistles, Bindweed, etc., and this is a thing that many amateurs fail to do. The book contains three coloured, nine half-tone, and fourteen line illustrations, and is well-edited.

THINNING AND DISBUDDING OF DAHLIAS.

Referring to Dahlias seen at the Wisley trials, a speaker recently observed (at the annual meeting of the Royal Horticultural Society) that raisers do not, in some instances, recognise their own varieties. The gentleman indicated, who is recognised as being an expert florist, inferred that the soil at Wisley is unsuitable for Dahlias. I do not agree with him, because the Dahlia plants that I have seen there each year at Wisley are in capital order and receive proper attention. But there is just one item of culture missed which would transform results if permitted ; I refer to thinning and disbudding. Varieties with small or medium-sized blossoms are suitable for a go-as-you-please style, but when it comes to the Cactus and to the larger Decorative sorts, then I contend we must thin the growth to see the flowers at their best. Some of the noble specimens produced for exhibition take a month or more to develop on the plant, and the only thing to arrest such development is to allow the lateral growths to proceed at will. The blooms may start well, but before these have gained much size growths above them and at the side of them push out and eventually smother the flowers. This is how one finds the two types at Wisley. If the soft shoots at the top were removed the flowers would rear their heads above the foliage and in the case of most of the better varieties would have stems as straight and almost as stout as a cane.

Thus, as we find them grown officially, Amèn Ra, possibly the most striking of the American Dahlias, has a scarcity of blooms and these few hidden ; we find, also, Albert E. Amos, which by simply thinning the growths can be made to produce a perfect ball of elegant florets on a stem that refuses to bend, has flowers flat as a pancake and scarcely recognisable. Similarly, that outstanding Dutch variety, Mr. H. C. Dresselhuys, fails to yield its beauty because of the rule that the growths may not be thinned at the trials.

These examples indicate what many visitors to the Wisley trials miss as a result of an arbitrary method of culture. Why not disbud in certain sections or certain plants ? What would the Rose be like if the growers were not allowed to prune them ? Take Sweet Peas : is it not the highly developed flower that has made it so popular ? So, why single out the Dahlia as a plant that may not be manipulated—presumably to make it an effective garden plant ? If it can be made more effective by thinning, then why not thin the growths and blooms ? There is hardly a plant known to garden culture that is not improved by the timely attention of the gardener in regard to the number of growths it shall perfect.

A writer in one of the gardening periodicals recently stated that raisers of Cactus Dahlias have been a long time originating the flower with the perfect stem. Apparently this writer is wanting in knowledge ; a little thought would prove that big blossoms must have time to develop, and the stem must have time to develop too, otherwise the weight of the former is bound to be too great for the latter, and it will bend as a consequence.

As I have tried to illustrate, the difficulty at Wisley is inattention in certain cultural details. As matters are at present it is next to useless for raisers to send their Cactus varieties to Wisley—which is unfortunate.

I cannot bring myself to think that the forms in vogue now will ever be good enough for a grower to take up as a hobby. I can understand an enthusiast searching among the plants either in daylight or with the aid of light when it is dark, in search of the usual insect enemies, when he contemplates handsome specimen flowers for exhibition, but among the Star, the Collerette, the Charm, and the Camellia varieties, who would bother about earwigs ?

Give a cultivator a variety that must be watched and tended in regard to thinning of branch and bud, and interest is kindled, and the plant becomes a study. The Dahlia has been one of those studies for years, but it is not likely to remain a cult much longer if something better is not provided than that which will become effective in the mass.

I suggest, then, the handsome specimen bloom is worthy of more consideration, and the novice should be taught how to grow it, rather than encouraged to believe that planting and tying alone are needed. *H. S.*

HARDY FLOWER BORDER.

MONARDA.

I was pleased to read Mr. Arnold's article on the Monarda on page 284. I would point out that M. didyma, the finest of the lot, when a good variety, such as Cambridge Scarlet, is secured, is very poor indeed when grown on dry soil. It is very liable to lose its lower leaves, and the flowers are much poorer than when growing in a rich moist soil.

In its native habitats the Monarda grows in moist soil, especially along streams. On the contrary, M. Bradburyana and M. fistulosa grow naturally in dry soil. *S. Arnott.*

STATICE LATIFOLIA.

This beautiful border plant is seen at its very best when planted in generous masses ; the loose and spreading panicles of blue flowers lend a touch of lightness to the border of mixed plants, and this Statice may be used in conjunction with almost any other flowers.

The broad-leaved Sea Lavender has large, oblong-elliptic leaves, long-attenuated into the petioles. The scape is tall and much-branched, the panicle ample ; the spikelets are one or two-flowered, rather remote, slender, slightly drooping ; the bracts are glabrous. The height of this hardy herbaceous perennial is about eighteen inches, occasionally rather more.

Propagation is effected by careful division of the roots. A well-drained, sandy loam will meet the requirements of most hardy Statices, which need an open, sunny position. The flowers are well-adapted for drying as "everlastings." S. latifolia was introduced from South Russia in 1791. *Ralph E. Arnold.*

FLOWER GARDEN.

PENTSTEMON KELLERMANII.

This Pentstemon is an attractive plant of sturdy growth, producing purplish flowers on somewhat rigid stems surmounting the dark green foliage.

In well-drained, sandy loam no trouble is experienced with this plant, and it is especially useful where a patch of distinctive colouring is welcomed. It is easily propagated from cuttings and, as is the case with most of its congeners, it is advisable to maintain a stock in a cold frame during the winter. *R. E.*

SALPIGLOSSIS.

The Salpiglossis is of great value for summer gardening, either in association with perennials or for massing in beds in the flower garden ; beds filled with these plants make a pleasing display of colour during July and August, and at the same time form one of the most striking features of the garden ; the plants also furnish excellent material for use as cut blooms. Young plants that have been pricked off into boxes containing a compost of good loam, leaf-mould and sand, should be hardened off gradually by removing them to cooler quarters. As the time for transferring the plants to the flower beds approaches remove the lights from the frames for at least a week before planting out takes place. If possible, choose a showery day for this work, and lift each plant from the frame with a good ball of soil attached to its roots. They may be expected to start flowering early in July and to continue in bloom well into September. The Salpiglossis has one great advantage over most other annuals in that it is admirably adapted for growing in a dry, sunny situation where it will thrive and flower freely. *C. Jones.*

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† *Soils and Fertilizers.* By A. J. Macself. Illustrated in colour, half-tone and line. Thornton Butterworth, Ltd., 15, Bedford Street, Strand, W.C. 2. 1926. Price 6s. net.

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Editors and Publisher.—*Our correspondents would obviate delay in obtaining answers to their communications, and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all letters relating to financial matters and to advertisements should be addressed to the* PUBLISHER; *and that all communications intended for publication or referring to the literary department, and all plants to be named should be directed to the* EDITORS. *The two departments, Publishing and Editorial, are distinct, and much unnecessary delay and confusion arise when letters are misdirected.*

Letters for Publication *as well as specimens of plants for naming, should be addressed to the* **EDITORS, 5, Tavistock Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

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POST-BLOSSOMING USE OF LIME-SULPHUR SPRAY, AND FRUIT-DROPPING.

WE are more than ever constrained to warn growers of the danger of applying lime-sulphur wash as a control of Apple scab after blossoming, at the concentrations normally recommended, especially where there is only the promise of a light crop.

In the *Journal* of the Ministry of Agriculture for April appears an article on "The Control of Apple Scab," by N. B. Bagenal, W. Goodwin, E. S. Salmon and W. M. Ware. With reference to the dropping of fruit following the application of lime-sulphur spray to Apple trees after blossoming, recorded by these writers a year ago, and in results published from here, the writers make this statement: "It is clear from the results recorded above that no such evidence (*i.e.*, of fruit-drop), can be gathered from the data collected in 1925, and it appears safe to conclude that in this season none of the sprays used caused an abnormal dropping of the fruit. . . . . . The very different observations in two consecutive seasons indicate that the dropping of the fruit is a complicated phenomenon needing a thorough investigation by the pomologist."

We hope fruit-growers will not be misled into thinking that this disposes of the reputed danger of the reduction of crop from the use of post-blossom lime-sulphur spray. In our work here, extended over five consecutive seasons (1919-1923 inclusive) we each year obtained some evidence of the existence of fruit-dropping following the post-blossom application of lime-sulphur; it was not restricted to one sort but certainly occurred with several varieties, and probably with all that were used in our trials. And as the writers of the article themselves state, it was confirmed in their own trials in 1924. There is, therefore, evidence in six consecutive years of fruit-dropping, and yet the matter is still said to be requiring thorough investigation by the pomologist.

Further, many of our results were supported by actual blossom counts, and figures showing the number of fruits matured from each hundred blossom buds, which seems to us a more accurate method of investigating a suspected fruit-dropping than either picking up dropped Apples or recording the number of fruits matured per tree.

As a matter of fact, the writers are to be congratulated in having still further confirmed these observations by their trials in 1925 (on which their article is based), though they seem, unfortunately, to have overlooked a very definite piece of evidence in this direction. According to their own figures, the average number of fruits per tree actually picked (matured) in 1925 were as follows (nearest whole number).

Bordeaux mixture applied twice ...	120
Bordeaux mixture applied thrice ...	196
Lime-sulphur, plus arsenate of lead applied thrice	247
Lime-sulphur applied twice	66
Lime-sulphur applied thrice ...	124
Control (no spray)	129

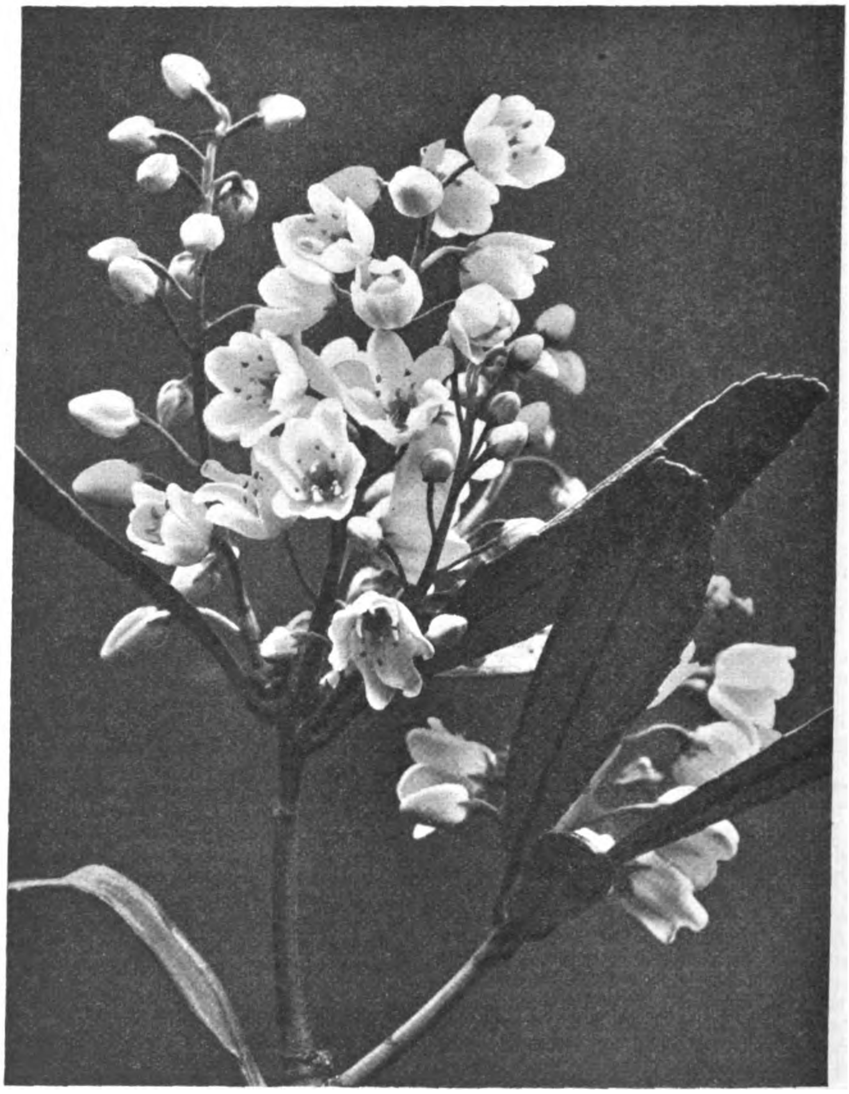


FIG. 164.—ANOPTERUS GLANDULOSUS.
R.H.S. Award of Merit, April 29. Flowers white.
Shown by Lieut.-Col. Messel, Nymans, Handcross (see p. 313.)

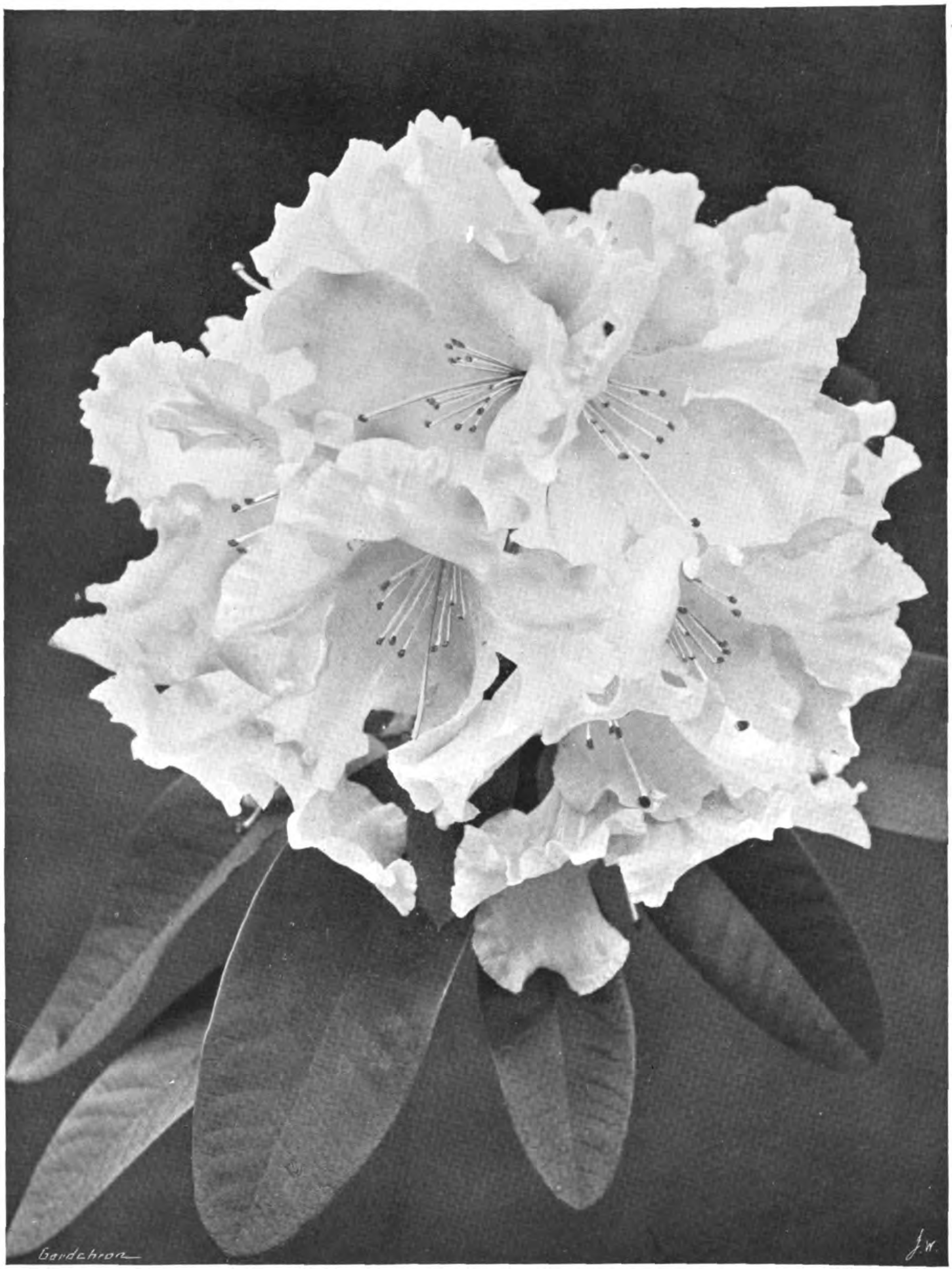
These figures may at first sight seem less conclusive than they really are. It is to be noted that where two applications were given instead of three, the application omitted was the pre-blossom spraying. Now it is clear that this pre-blossom spraying, whether of Bordeaux mixture or of lime-sulphur, has in all cases given a marked increase in crop. Thus it is only fair to compare together the crops of trees sprayed the same number of times with the different fungicides. Similarly, we can only properly compare the crops of the control trees (so far as fruit-dropping is concerned) with those sprayed twice with Bordeaux mixture or lime-sulphur. Had there been another set of trees sprayed before blossoming but not after, comparison could fairly be made with those sprayed three times.

The comparisons suggested show that three applications of lime-sulphur, as compared with three of Bordeaux mixture, reduced the crop by over 36 per cent.; similarly, two applications, reduced it by 45 per cent; whilst the two applications of lime-sulphur, as compared with no spraying at all, reduced the crop by almost 49 per cent. What could be more conclusive? (It might seem that there is also a small reduction of crop from two applications of Bordeaux mixture; but the figure, seven per cent., is so small as to be probably much more than covered by the experimental error).

The fact that three applications of lime-sulphur plus lead arsenate show the heaviest crop of all is easily explained. The writers make only a slight reference to insect attacks, and none at all to attacks by larvae of the winter moth and similar insects. Undoubtedly the pre-blossom application of lead arsenate (with the lime-sulphur), by controlling caterpillar attacks, reduced a heavy loss of crop from this cause. It is at least probable that, if a further set of trees had been sprayed three times with Bordeaux mixture plus lead-arsenate, the average crop would have been still heavier.

The reason why the fruit-dropping was not shown by the number of dropped Apples picked up on July 20, is also easily explained. We have suspected for several years that, when two applications of lime-sulphur are given after the petals fall, the bulk of the fruit-dropping takes

Supplement to The GARDENERS' CHRONICLE.



RHODODENDRON DOROTHEA.

place immediately after the *earlier* application. These figures tend to confirm that suspicion. In the trials recorded by the writers of the article, the earlier application (after blossoming) was given on June 4, the fruit being stated to be three-eighths-of-an-inch in diameter at this date. Yet, when the dropped fruits were picked up over six weeks later, by the writers' own statement, no fruits smaller than three-eighths-of-an-inch were counted! And since the weather in this period was almost continuously dry, the dropped fruits would probably have shrunk to one-eighth-of-an-inch or less in diameter.

Thus we wish to emphasize once more the fact that fruit-dropping, following the application of lime-sulphur spray at normal concentrations to Apple trees after the petals fall, is a factor to be seriously considered by growers. It is often possible, without doubt, to apply lime-sulphur after blossoming and still get a good crop; but the risk is very great, and we now know of several instances in which commercial crops have been materiallly reduced by this practice.

There still remain to be explored the possibilities of other chemical combinations applied at various seasons and concentrations. Until such investigations have been carried far enough to yield satisfactory results, we ourselves are only prepared to use on our own Apple plantations (after blossoming) a very dilute lime-sulphur wash—one in one hundred, plus three to four pounds of arsenate of lead paste, the addition of which is known to increase the fungicidal value of what would otherwise be a very weak fungicide. And we still recommend the use of Bordeaux mixture for the control of scab on varieties known not to be seriously injured by it. *Norman H. Grubb, Ronald G. Hatton, East Malling Research Station, Kent.*

DOES FROST KILL INSECTS?

I DESIRE to thank the correspondents who have so kindly replied to the above querry. They all agree that frost has little effect on insect life. Frankly, I am disappointed, because I had hoped that some of the writers who tell us that low temperatures help to control insect pests, would have given us the benefit of their observations. If they do not soon enter their objections I shall believe they have never made any observations on the subject, and that each year they try and bluff themselves and others into believing that while a hard winter is very uncomfortable, it keeps down insect pests.

Indirectly, frost has an effect on certain pests; it has a great effect in improving soil conditions and improved soil conditions are reflected in the better growth of our plants. Better growth means healthier plants and certain insects rarely make much headway on strong, healthy specimens. From this standpoint I would agree that frost assists us in regard to insect pests. When the assertion is made that frost actually reduces the number of insect pests, I certainly do not agree; at least, not until I have strong evidence to the contrary.

Text books on the subject are rather vague as to the effect of frost on insects, although some of them are quite definite in stating that frost does not kill insects, *e.g.*, Theobald* writes: "It must be remembered that frost has little or no injurious effect upon insects in the egg or pupae stage, or even upon most maggots.—I have known chrysalids frozen as brittle as glass, and yet their vitality was unimpaired. Frost, if anything, is beneficial to insect life, for the hard state of the ground protects the creatures from the attacks of birds." Examples are given by other authorities of larvae being uninjured by frost and two insects especially are often quoted, namely, Turnip Gall Weevil, (Ceuthorhynchus pleurostigma, Marsh), and the Magpie Moth (Abraxas grossulariata, Linn). There is also a record† regarding Celery Fly (Acidia heraclei, L.). "Larvae not half grown were found in Kent on November 20, and at Wye; twelve degrees of frost on two successive nights failed to kill them."

I have made many observations during the last few years and have failed to notice anything that would lead me to think low temperatures during the winter gave any control over insect life. A few of my observations are appended.

CELERY FLY (Acidia heraclei, L.).—When examining a row of Celery during the first week of January, 1924, I found a larvae of this fly lying frozen on the top side of a Celery leaf (I have no record of the amount of frost for the previous night). The larvae was placed in a specimen tube; it was frozen quite stiff, and to prevent it being shaken about, I put in a Celery leaf. The specimen tube was placed in my pocket and forgotten until the next morning. On examining the tube the larvae appeared to be "missing," but was found busily feeding within the leaf. Shortly afterwards the larvae pupated, and in due course a Celery fly emerged. I have the specimen preserved in my collection.

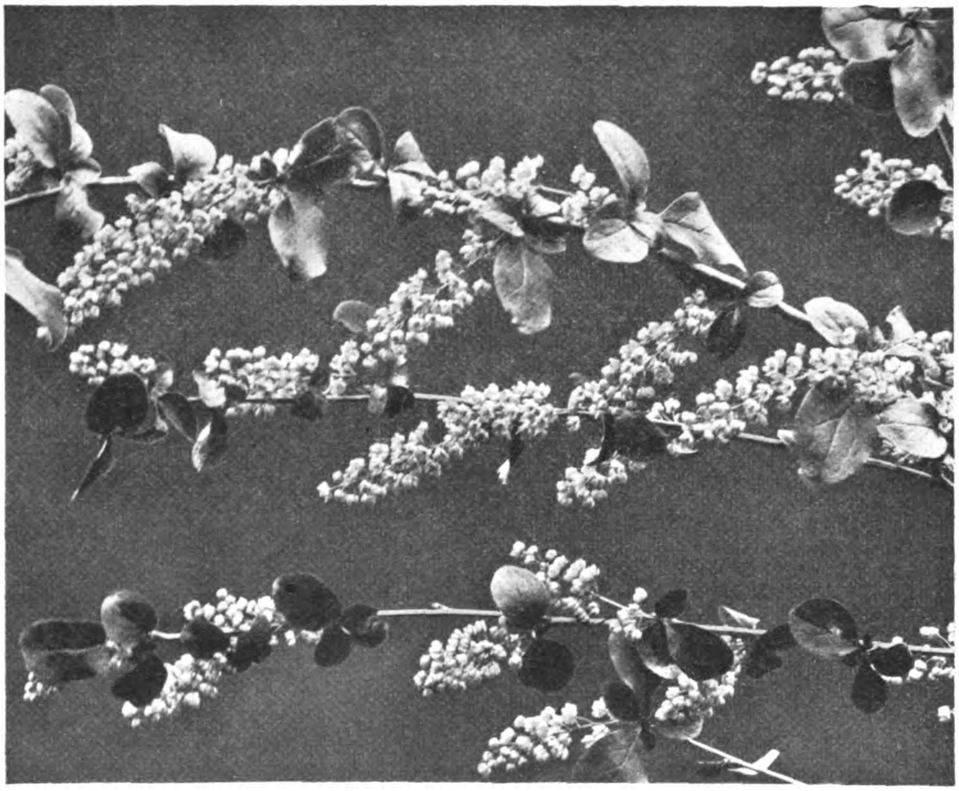


FIG. 165.—BERBERIS KANSUENSIS.

R.H.S. Award of Merit, April 20. Flowers yellow.
Shown by Mr. E. H. Cox, Glencarse. (see p. 313).

CARROT ROOT FLY (Psila rosae, Fab.).—During the winter of 1923-1924, I had an old Carrot bed under observation. The crop was lifted in October, but many roots were left in the soil, being badly grubbed, small and unsaleable. The bed was examined once or twice each month, during November, December, January and February. On several occasions the soil was frozen to a depth of two inches, but the larvae had made no attempt to go deeper. They were simply lying motionless in the frozen soil, and appeared to be frozen through. On each occasion larvae were collected and taken home So soon as they were placed under warmer conditions they resumed activity and commenced to feed again. Not one died; they all pupated, and eventually flies emerged. These specimens were exhibited at Chelsea in May, 1924. I would like to point out that these were not just isolated maggots found occasionally in the frozen soil, but that they were collected in quantity, just over 400 larvae being obtained from the old Carrot bed and 200 specimens were taken to the Chelsea show. It was interesting to notice that during the winter of 1923-24 frost occurred early in November and continued more or less until January; under these conditions the last batch of Carrot Fly larvae did not pupate until February, 1924. In the following season (late autumn, 1924) we did not get early, prolonged frost, and the last batch of Carrot Fly larvae had pupated by the end of November. On this evidence I feel sure that the only effect of low temperature on Carrot Flies is to delay their life history.

CODLIN MOTH (Cydia pomonella, Linn.)—This pest is not so common in the Yorkshire area as it is in places farther south. It is, however, possible to find specimens at the back of a grease band after the ground has been frozen to a depth of four inches for a week. I have never found a dead one.

LADYBIRDS (Coccinella spp.)—During a long spell of frosty weather in January, 1923, I was examining some bush Apples for eggs of the Winter Moth. The sun was shining at the time but I was surprised to find about half-a-dozen ladybirds running about over the trees. It is, of course, common to find ladybirds sheltered for the winter beneath bark, grease bands, old sack bands, in fact, anything that will give them shelter. Never before or since have I found them wandering about over a tree in January; it looked almost as though they were searching for food. The eggs present on trees at the time were those of the Winter Moth, aphis and red spider. It does not do to jump to conclusions, but I think that they were searching for food. I have proved that ladybirds will eat the eggs of the Winter Moth when kept in captivity, but whether they do this when at liberty I have not proved. If I had known at the time that ladybirds would eat eggs of this moth when in captivity, I should certainly have spent more time with those I found wandering in January, 1923. I might then have made some observations as to what they were doing.

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* *A Text Book of Agricultural Zoology*, by Fred. V. Theobald, M.A.; page 480.

† *Report on the Occurrence of Insect and Fungus Pests on Plants*, page 19. 1917. Ministry of Agriculture and Fisheries.

Winter Moth (Cheimatobia brumata, Linn.).—I have noticed that from October onwards the female Winter Moths come up and are caught on the grease bands very freely during open weather, but that they stop coming up when the soil is frozen hard. So soon as the frost gives, the moths begin to ascend again. I have had female Winter Moths under observation during periods of hard frost, but I have never known one die until she had laid all her eggs. On the contrary, rainy weather appears to cause mortality amongst the males; they get battered about and die off very quickly. I have, however, failed to find that this has any effect on the race, because no matter how rainy the weather, I have never found any unfertile eggs. (The eggs of Winter Moth are green when laid and, f fertile, change colour later.)

Turnip Flea Beetle (Phyllotreta nemorum, Linn.).—I have repeatedly found these beetles beneath the bark of trees during frosty weather, embedded in ice; they all become active again if placed under warmer conditions.

Raspberry Stem Bud Moth (Lampronia rubiella).—We have had rather a severe winter here in Yorkshire this season, but the caterpillars of this moth were attacking the buds of Raspberries in the Leeds district three weeks earlier than I have seen them before. I found them in the buds on the 15th of March, and my previous earliest date was April 5.

The above examples will serve to show that at least some insects are not killed by frost. I am, of course, only making this statement in connection with native insects. Pests which have been introduced from warmer climates than ours are no doubt killed by low temperatures. *G. C. Johnson, Leeds.*

NOTES FROM ABERBEEN.

The behaviour of plants in cultivation in the northern parts of Great Britain is a subject hitherto dealt with somewhat sparingly in *The Gardeners' Chronicle*, therefore notes on plants of interest in flower in the Cruickshank Botanic Garden, Aberdeen, may prove useful as well as interesting. This garden is at present in course of development, but even now contains many plants of quite recent introduction and some not found in cultivation elsewhere in this country.

One interesting subject in flower is Anemone Pulsatilla, of which there appears to be two forms in cultivation here. One form has deep purple flowers and finely-divided foliage, while the other is larger in leaf, and not so finely divided, and has larger flowers of a mauve shade. If anything, the latter is slightly taller than the other form. Quite distinct is A. rupicola, with white flowers, which reaches to a height of nine inches or so.

Throughout the rock garden bold clumps of Saxifraga Delavayi, a member of the Megasea section of the genus, are displaying their pink flowers, which are produced in great profusion. S. muscoides and S. decipiens are also in flower, in addition to the charming S. Potts's Seedling. These three Saxifrages have white flowers.

Another interesting little rock garden plant is the purple-flowered Primula Julianae, now producing its flowers in profusion. It is a very valuable ornamental plant. A group of blue Primroses is also attractive, the colour of the flowers varying from a pale blue to a good deep blue. These are the best plants I have seen in Scotland, but there are some very fine examples in the Royal Horticultural Society's gardens at Wisley.

Hardy shrubs do not afford us much colour at present, although a fine display of red flowers is made by Pyrus japonica on a south wall. The same wall also enables Amelanchier canadensis to show its dainty blossoms. Not far away is a good example of Berberis Darwinii, some eight feet high, covered with its orange-coloured blossoms.

Under glass a good plant of Mitraria coccinea is flowering. It is trained up the sides and under the roof of a cool greenhouse. Although quite hardy here, it requires greenhouse treatment in order that it may effectively display its red flowers. Another red-flowered plant in the same house is Euphorbia splendens, common enough in cultivation and a useful greenhouse flowering subject.

Very interesting are the flowers of the Sarracenias, the North American Pitcher Plants, which may now be seen. Also in flower is the curious Darlingtonia californica, another insectivorous plant hailing from California. At a recent meeting of the Royal Caledonian Horticultural Society in Edinburgh, Dr. R. J. D. Graham showed a lantern slide depicting Darlingtonia californica bearing flowers and fruit on the same plant. A large batch of seedling plants was raised in the Royal Botanic Garden, Edinburgh.

Another greenhouse plant deserving of mention is Gesnera Lindleyi, with orange-scarlet flowers and handsome, serrated leaves. This species is readily increased by cuttings, and young plants should be propagated annually as these give a better display of flowers than older specimens. *Robert H. Jeffers.*

FLORISTS' FLOWERS.

CHRYSANTHEMUMS.

Plants of the large exhibition varieties that were rooted early and potted on, should be ready for transference to their final pots by the middle or end of May. The compost should consist of three parts good fibrous loam (not too light in texture, with the finest of the soil shaken out), one part of old horse-manure that has been dried and passed through a coarse sieve, a half-part of wood ash or small charcoal, and a half-part of clean road grit. After these materials have been well mixed, to every barrowful of the compost add one six-inch potful each of bone-meal, crushed oyster shell and Le Fruitier manure; for the crimson varieties add half the amount of manure and bone meal. Very large pots should only be used for the strong growing varieties; two plants may be grown in each ten-inch pot with success, and for tall varieties this is an excellent practice, there being plenty of soil to keep the supports firm. Many of the choicer exhibition varieties, such as Queen Mary, Princess Mary, Mrs. G. Monro, Shirley Golden, Mrs. Algernon Davis and its sports, and Mrs. M. Sargent, are best trained to single stems in small sixteen-sized pots. The plants need careful attention all through the season and especially in regard to watering on hot, dry days. If old pots are used, they should be cleansed, whilst new ones should be soaked in water for a time before using them, otherwise the soil will soon become dry. The crocks used for drainage should also be clean and placed carefully so that the drainage will remain perfect.

The plants should be well-watered a few hours before they are potted, otherwise they will soon flag. Pot firmly but not too hard, and after potting the plants, stand them together in a sheltered position, facing south. Give the soil a copious watering the day after potting, using a rose can. In hot, dry weather spray the foliage several times during the day, as this will assist to keep the plants fresh and healthy. At this season the plants should be sprayed with a reliable insecticide at least once a week to prevent leaf miner and black fly infesting them.

Chrysanthemums are best placed in the open for the summer. They should be arranged in rows not less than four feet apart, each one clear of its neighbour. Stand the varieties together, according to their height. Wires may then be fixed accordingly. After years of experience I consider that straight Hazel sticks are the best supports for the plants in summer. They may be cut to the desired length to suit each variety and they do not harbour earwigs, which often spoil the buds. Another very important item is to stand the pots on two battens fixed a little way apart and placed on bricks. This method prevents worms from entering the pots and allows plenty of air to reach the roots.

About the second week of June the plants should be arranged, staked carefully and fastened to the wires already mentioned. During June and July some varieties turn a little yellow in the foliage and the cultivator is perplexed as to the cause. I find that a little sulphate of iron, not more than a quarter-of-an-ounce to a gallon of water, applied once or twice will soon improve both the colour and strength of such plants. Feeding should not be commenced until the middle of July, and then only a little weak soot water should be afforded the roots. After this date the buds will soon begin to appear; all side-shoots should be rubbed out: those that appear around the bud should not all be removed on one occasion. A week or two after the buds have been "taken," feeding may commence in the form of small top-dressings and as liquid stimulants, applying them a little and often, to build up the flower gradually. Weak doses of Peruvian guano are excellent; Clay's fertiliser is also good and quite safe to use. Nitrate of soda and potash, etc., should be used with the greatest care, otherwise more harm than good will result; damping of the petals when the blooms are opening is nearly always due to over-feeding, and yet to obtain first-class blooms the plants must be fed.

Housing the plants should commence when the buds show the first petal, and none should be left out-of-doors after September 20.

Earwigs should be diligently sought after. Broad Bean stalks cut into short lengths and placed about the plants are excellent traps: the earwigs should be blown out of the traps into jars containing a little paraffin.

After housing the plants in the autumn the house should be kept cool but dry, and I have always noticed that the finest blooms are obtained in cool, airy conditions. Fumigate the house on quiet evenings to keep insect pests in check. *E. H. Pearce, Long Sutton, Basingstoke.*

WOODLAND GARDEN.

SANGUINARIA CANADENSIS.

Though not always easy to establish, the Canadian Bloodroot is not a difficult subject if afforded the right conditions, and it is perfectly hardy. The essentials to success are good drainage, a soil that is on the cool side, plenty of humus in the form of leaf-mould, and a quiet corner sheltered from wind. Shade is not essential, provided the rooting-medium is sufficiently moist.

S. canadensis is always most attractive in a woodland setting with a carpeting of moss or other dwarf natural herbage, and such companion plants as the smaller Muscari or Scillas. Several plants should be disposed in an informal grouping, and these, if satisfied with their conditions, will soon spread into a good colony. In this way the large but frail, white, starry blossoms that appear in April, each with its single, blue-grey leaf, will be infinitely more charming than a solitary plant or two in a rock garden pocket. The plants should be transplanted from pots without root disturbance. Though there is but one species several forms are offered, the large-flowered (grandiflora) being the best. *J.*

VEGETABLE GARDEN.

LETTUCES FOR ALL SEASONS.

(*Concluded from p.* 310).

FORCED Lettuces may be produced on mild hot-beds, the sowing and planting times being the same as those already indicated, a little earlier or later to suit the circumstances. The objection to hot-beds is that the crop is not so easily attended to in inclement weather.

Any good, airy house containing sufficient water pipes for the necessary heat may be used. Market growers often find Lettuces a profitable catch-crop between their more important main-crops. Following the supplies of forced Lettuces come those grown in cold frames. These are equal in quality to the former and cost less to produce. Any ordinary frame will serve, provided it is in a fairly dry position, with a south or west aspect. No special preparation is necessary beyond putting in about six inches of fairly rich compost. If the position is damp it may be necessary to put a few clinkers in the bottom of the frame, these also being an economical means of raising the soil towards the glass, but this will depend upon the depth of the frame. I am inclined to think it a mistake to raise the soil too near the sashes as the limited space does not provide for a free circulation of air, which is necessary for this crop.

The seeds should be sown about the first week of October, either in a temporary cold frame or under cloches, and the seedlings when large enough pricked out two inches apart in a cold frame, where they may remain until planted six inches square in the permanent frames early in the New Year. When this method is adopted the soil in which they are pricked out should not be so rich as that in which they are planted to mature. Another method, where frames are at liberty to receive them at the time of sowing, is to sow where they are to grow, thinning later to the required distance apart.

It is advisable to thin gradually as a certain amount of "damping" is almost certain to take place. The former method finds favour with market growers, and the latter is suitable where only small quantities are grown. The treatment is much the same as given to forced Lettuces. When the plants are established admit plenty of air at all times, but protect them from heavy rain during the winter. There should be no attempt to coddle the plants; covering material will only be necessary during severe frosts. A little warmer treatment may be given the plants (or a portion of them) during the early part of March; this will depend upon the demand. Cutting should commence about the middle of March. Frequent stirring of the soil will be beneficial, and a sharp watch must be maintained for mildew. The selection of varieties for this purpose is much the same as for forcing. Quick-hearting, small, compact growers, without an undue proportion of outer leaves, are the most valuable. Golden Ball Forcing, sown on September 30, 1924, was ready to cut the third week of the following March, the same result being obtained during the past season. Tom Thumb is a very good second to Golden Ball. The list would be incomplete without reference to Early French Frame and Early Paris Market Forcing. Either of these with the two former should provide a succession of heads. If crisp Lettuces are desired, Mignonette, a coloured variety somewhat resembling Continuity in colour, may be thoroughly recommended. If a Cos variety is required Dwarf Perfection should meet the case.

Then come the earliest supplies from the open viz., those grown without any protection during the winter..

The importance of position has already been referred to. The seeds should be sown during the early days of September, earlier or later according to the locality; the best date for the particular district will be ascertained by experience, this being an important factor, as in the case with all crops required to withstand the winter. Sowing may either be done in a seed-bed and transplanting performed before the end of October, or in rows twelve inches to fifteen inches apart where the plants are to grow and the latter thinned later from eight to twelve inches apart, according to the variety. In the case of Tom Thumb less space than this will suffice. Frequent hoeings and occasional dustings of soot will be of the greatest assistance

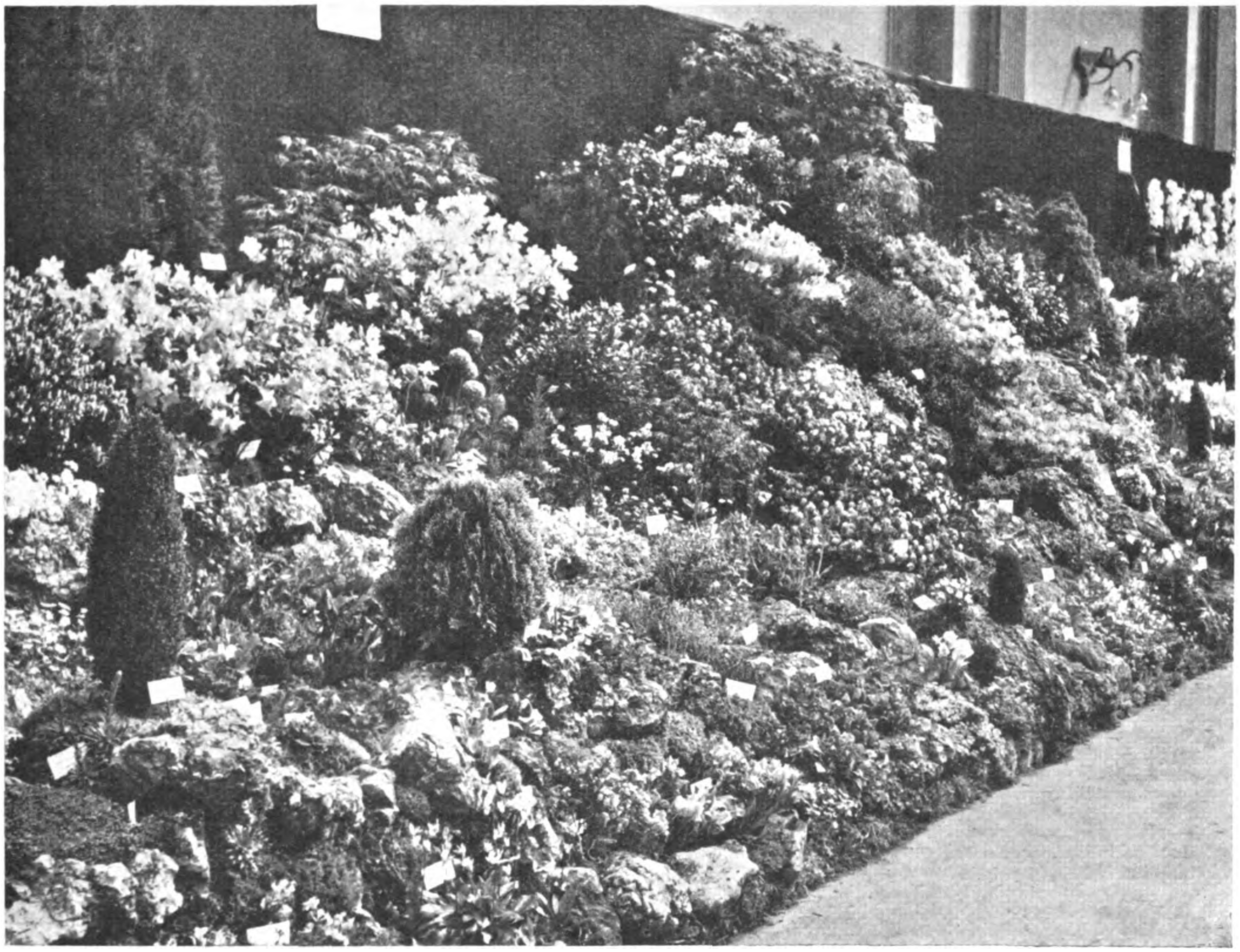

FIG. 166.—ROCK GARDEN EXHIBIT ARRANGED BY THE HON. VICARY GIBBS (Gr. MR. E. BECKETT), ALDENHAM HOUSE, ELSTREE.

Shown at the R.H.S. meeting of April 20 and awarded a Gold Medal. (see p. 313).

to the crop. The time of maturity will depend on the season, but it is usually towards the end of April.

The following are dates when cutting has commenced at Wisley during the past eight years:—1918, May 4; 1919, May 24; 1920, April 21; 1921, April 21; 1922, May 22; 1923, April 30; 1924, May 5; 1925, April 21.

With a selection of suitable varieties it is possible to maintain a succession from the time the crops in the cold frames are exhausted until the earliest spring sown Lettuces are ready.

Trials of Lettuces for this purpose were carried out at Wisley during the winters of 1917-18 and 1922-23. The two seasons were of an entirely different nature, the former being rather severe, and the latter comparatively mild and wet.

It is very noteworthy that the same varieties came out top in each case, and the majority were well-known sorts. For autumn-sowing preference should be given to those varieties which are known for their hardiness. Until a few years ago Cos varieties were invariably used for this sowing, but they have the disadvantage of being much slower to mature than the Cabbage sorts, and are usually of poor quality. In past trials numbers of Cabbage varieties proved suitable for this season of the year.

One of the earliest and best is the large form of Stanstead Park, which was awarded a First Class Certificate during the winter trial of 1922-23, the heads being ready to cut on April 30 from seeds sown on September 5. A similar award was made to Brittany Winter White, which is also excellent for this purpose. Two well-known varieties are Hammersmith Hardy Green and All-the-Year-Round, which maintained their reputation, and each received an Award of Merit in the same trial.

Where a crisp Lettuce is desired, Webb's Wonderful should prove useful; this variety is extremely valuable for private gardens where Lettuces are required over a long season. For early borders, Tom Thumb is indispensible, it being possible to obtain a large amount of produce from a small area.

Although Trocadero did not prove outstanding in the trial, it is, nevertheless, an excellent variety for this season of the year in some districts. When it is essential to grow Cos Lettuces, Goldring's Bath Cos will be found one of the best, being quicker in hearting than most other varieties of this class. This variety, sown on the same day as Stanstead Park, was ready to cut on May 11, while Hick's Hardy Winter was not ready until June 4.

The last section is known as summer or maincrop Lettuces. These, with the exception of the very earliest (which are raised under glass early in the year and planted out when hardened), are sown at intervals of about a fortnight from March to June inclusive, the earliest heads being ready to cut early in June. A succession may also be maintained in this case (as in any other) by sowing on the same day three or four varieties that mature at different dates. If this method is adopted the intervals between the sowings may be lengthened.

Bolting is very liable to occur in plants raised under glass and later planted in warm borders. To extend the season it is better to rely on a variety from the autumn sowing that is known to stand well.

For all except the very earliest sowings at this season it is advisable to sow thinly where the plants are to grow, and thin the seedlings, thereby minimising the risk of bolting. When planting out is possible it will be found a suitable means of extending the season of a particular batch if a portion of the thinnings are transplanted, as the undisturbed plants will be ready for cutting a week or ten days in advance of those transplanted.

Cos varieties are generally grown for the late summer and autumn supplies, and by sowing during July and August in frames or some other position where the plants may be protected during their latter stages of growth, the supply may be continued far into the autumn. The choice of variety for summer supplies must fall upon those known to withstand the effects of drought.

Fortunately there are several that are outstanding in this respect, probably the best example being the variety Continuity, which "stands" so well as to be a source of worry to the seed-growers, who have to resort to various means of making it run to seed.

There is a very wide selection of varieties for the summer supplies, most growers finding no difficulty in this respect, each one having their own particular favourite. For earliest sowings All-the-Year-Round, Heartwell and Standwell are varieties of merit, and if all three are sown on the same day a long period of cutting can be obtained. Probably the most useful variety at this season of the year is Continuity, this sort withstanding the effects of drought with impunity. Useless for market work it is nevertheless one of outstanding merit for private gardens.

Webb's Wonderful and Crystal Palace are two good crisp varieties of Cabbage Lettuce.

Of Cos varieties there is a wide range to choose from, the self-folding kinds being the most useful. For early sowing it is difficult to surpass Dwarf Perfection. In the 1924 trials this variety was ready to cut eleven weeks from the date of sowing. This may be followed by Lobjoit's Green Cos, a slightly larger type of good quality. That popular variety Paris White, of which there are many forms, should be given a trial in every garden. For exhibition or cooking purposes the very large Balloon Cos may be grown.

Two good representatives of the semi-Cos type are Madrid Green and Winter Density.

A full account of the Lettuce trials at Wisley may be found in the *Journal of the Royal Horticultural Society*, vols. XLV, pages 334 and 354; XLIX, page 255; and LI, page 144. *J. Wilson, Wisley.*

THE CULTIVATION OF POTATOS IN HEAVY GROUND.

Where the ground intended for the planting of Potatos is of a heavy texture it is good practice to ridge it up early in the autumn. The ridges should be made as high as possible and left in a rough state in order to expose as much of the soil as possible to the influence of the winter's frosts, winds and rains. Towards the end of March the ground should be forked over deeply to bring the soil to its proper level and to ensure a fine tilth. The ground in these gardens is working wonderfully well this year, after such a wet winter, and is ready for planting.

I have practised the following method of growing Potatos for many years. A trench is dug the width of the spade, not more than six inches deep, and the excavated soil is wheeled to where the last row of Potatos is to be planted. A layer of half-rotted leaves is placed in the trench and the Potatos planted in the leaves. The second trench is dug in the same way as the first and the soil from this trench is placed carefully in the first trench to cover up the tubers, and so on until the last row is planted. Too much care cannot be expended when covering the tubers, especially when they are well-sprouted, not to damage the growths. I plant the tubers of early and mid-season varieties in rows two feet apart, and space them one foot apart in the rows; the rows for the late sorts are made two feet six inches apart and the tubers are planted fifteen inches asunder. The decayed leaves serve several purposes; in dry, hot weather they keep the Potatos moist, whilst in wet seasons the average of diseased Potatos is not large, nothing to compare with those that are grown in the ordinary way. The tubers when lifted are clean and of good shape.

I have used half leaves and half stable manure, mixed, with good results; when only leaf-mould is used, the Potatos are cleaner. Taking one year with another our average crop is ten tons to twelve tons per acre. For early use I grow Ashleaf Improved and Witch Hill; these are grown on south borders where Potatos have been planted for over thirty years. I have just planted Potatos in these borders for the thirtieth time, and one border is cropped wholly with Ashleaf; I have obtained much heavier crops in late years than I had formerly. Arran Comrade is quite the best variety for the second crop. Last year I grew Ben Lomond, a splendid cropper and a good cooking Potato for late use, but I cannot find any sort to take the place of Up-to-Date for our heavy soil. I have restricted my varieties to about six. The Bishop is not a satisfactory Potato here; King Edward is a good all-round Potato of much better flavour on some soils than others; Great Scot is good, but grows too large, and the tubers are not of good shape. Many other varieties have been grown but discarded.

I change the seed every second or third year.

Fallen tree leaves are beneficial to all crops on heavy soils, and all that are procurable should be collected so soon as they have fallen from the trees, placed in a heap in an out of the way corner, protected from high winds, and allowed to remain there for twelve month before using them. *E. Neal, Tilgate Gardens, Crawley.*

HOME CORRESPONDENCE.

[*The Editors do not hold themselves responsible for opinions expressed by correspondents.*]

Glyptostrobus pensilis.—In the interesting account of this tree in your issue of April 24, which has been communicated by Professor Henry, there occurs this sentence: "The only tree now living in England out-of-doors is in the wonderful Pinetum of Nymans, Sussex." A rash assurance of this kind marks the very young, and my friend Professor Henry is very young in disposition, if not in years. I know certainly of one growing in the open at Aldenham, and of more than one at Sheffield Park, Sussex, and investigation would doubtless show the existence of others. *Vicary Gibbs, Aldenham House, Elstree.*

Destruction of Queen Wasps and Merodon Flies.—Queen wasps are now making their appearance, and as each queen is a potential nest their destruction is important to fruit growers and horticulturists generally. Their preference for the flowers of certain shrubs is well-known, and on sunny days large numbers may be seen, with bees and flies, on various kinds of Cotoneaster. The usual method of capture with a butterfly net is cumbersome, and for obvious reasons frequently ineffectual. Last year we adopted a sporting method of dealing with them. With a Harrington and Richardson Premier automatic, having a six-inch barrel and firing twenty-two rim-fire cartridges loaded with dust shot, the wasps may be destroyed without difficulty at a range of four feet, nothing being left but fragments. Little or no damage is done to the plants—neither other wasps, nor bees or flies, take any notice of the report, and there is practically no danger. This method is equally efficacious for destroying the large Daffodil Fly (Merodon). Any intelligent lad with a steady hand can make good practice, and as this method appeals strongly to sporting instincts, keenness follows. In less than nine hours spread over nine days my son destroyed 164 queen wasps in this manner on a bank of Contoneaster horizontalis about fifteen yards long. I destroyed many more on the same spot, of which no record was kept. *W. B. Cranfield, Enfield.*

Lobelia cardinalis.—I send herewith an old stool of a variety of Lobelia cardinalis wintered under the conditions recommended in my short note on this subject which appeared on page 60, vol. LXXIX. I have tried all the methods mentioned by Mr. King (p. 240) and found none so satisfactory as planting them out in a frame. Boxing-up the plants was not recommended for storing them for the winter. On April 9 the old stools were divided and planted in the mixed flower borders. *Charles Hodgson, Acton Place Gardens, Acton, Sudbury, Suffolk.*

[The specimen received carried numerous sturdy growths and in every way supported the statement made by Mr. Hodgson.—Eds.]

SOCIETIES.

NATIONAL ROSE.

The spring show of the National Rose Society was held at the Royal Horticultural Hall, Vincent Square, Westminster, on Friday, the 23rd. ult. The exhibits were not quite so numerous as usual, but the quality was good, especially in the amateur's section. Of the varieties, Maréchal Niel shown by Mr. A. T. Goodwin, was especially noteworthy, while Mrs. Foley Hobbs was grand in the amateurs' classes, and the yellow Roselandia figured prominently in the decorative classes. There was a very large attendance; Princess Mary, Viscountess Lascelles, was present before the show was opened to the general public and she was escorted round the exhibition by Mr. C. C. Williamson, the President, Lord Lambourne, Miss Ellen Willmott and Mr. and Mrs. Courtney Page. The latter lady presented a bouquet of Roselandia Roses to Her Royal Highness, who also took a plant of Paul's Scarlet Climber to present to the Duchess of York.

Gold Medals.

Dame Edith Helen. (see Fig. 160).—This magnificent H.T. Rose received a Certificate of Merit at the Regents Park show last summer, and on the present occasion it was presented in even greater excellence. The large, shapely, fully double blooms are ideal for the show board, and the variety is also recommended for garden decoration. The colour is a rich, glowing pink. The broad petals recurve attractively and the variety is deliciously scented. Shown by Messrs. Alex. Dickson and Sons.

Lady Margaret Stewart.—This is another fully double H.T. Rose of large size and the best exhibition shape, which also is delightfully perfumed. In form it is more broadly conical than the foregoing and it had dark green, shining leaves with distinct serrations. The colouring is elusive and somewhat variable, but may best be described as being old gold, lightly stippled and suffused with shades of peach-pink which is deeper on the outsides of the petals. It is a very beautiful Rose and is recommended for forcing, exhibition and the garden. It received a Certificate of Merit at Regent's Park last summer. Shown by Messrs. Alex. Dickson and Sons.

Certificates of Merit.

Maud E. Gladstone.—This is a very attractive Polyantha Rose, of bushy habit and free-flowering, that should be valuable for bedding and also for supplying cut sprays. The double flowers, which are large for the type, open widely and have attractively waved margins. The colour is a pleasing soft pink which pales slightly at the edges of the petals. Shown by Messrs. Bees, Ltd.

Thelma.—This Rambler was also entered for the Cory Cup which is open to competition at all the shows of the year. The pollen parent was stated to be Paul's Scarlet Climber, but the blush pink flowers were not so large or so double as those of that fine variety. Thelma is of vigorous habit, and the raisers state that the flowers continue fresh over an unusually long period and are of much brighter colour when grown out-of-doors. Shown by Messrs. Walter Easlea and Sons.

Other Seedling Roses.

In the class for New Seedling Roses there were several, besides the two which received the highest award of the Gold Medal, which have previously been awarded the Society's Certificate. These possessed decided merits even though they advanced no further in the honours list.

Lady Sylvia, shown by Mr. George Prince, is a decorative H.T. much of the same type and colouring as Ophelia and Madame Butterfly. *Saltaire*, raised by Messrs. Alex. Dickson and Sons, is a H.T. Rose of globular shape and rich, velvety, crimson-maroon colour. *Ivy May*, shown by Messrs. G. Beckwith and Son, is a pretty, pink H.T. variety of medium size, with long buds and recurved petals on the fully developed flowers. *Margaret Spaull*, shown by Messrs. B. R. Cant and Sons, is a large, fully double H.T. variety with a pleasant perfume. It is of yellow shades of colour with a few faint blush lines on the broad petals. *Joan Cant*, from the same raisers as the foregoing, will probably be seen again, and if in better condition, should receive recognition. It is a well-formed H.T. and, in colour, a paler Souvenir de la Malmaison. *Everest*, staged by Messrs. Walter Easlea and Sons, carries its foliage too far up the flower stem, otherwise it is a good, shapely white H.T. variety tinted with pale lemon-yellow.

In the class for six varieties introduced into commerce since the beginning of 1922, Mr. Elisha J. Hicks was the only exhibitor, and he was awarded the first prize for a moderate half-a-dozen, of which the best were Muriel Wilson, lemon-yellow; John Hart, deep pink; and Lady Verey, pale pink.

Nurserymen's Classes.

Two classes were provided for groups of Roses and in each class there were two exhibits. The more important was for a group of Roses in a space of 150 square feet, and the exhibitors were Messrs. Chaplin Bros., Ltd., and Messrs. W. Easlea and Sons, who were placed first and second respectively. Messrs. Chaplin Bros. arranged pillar varieties in the centre, the tallest plant being White Dorothy, which, with Hiawatha, Chatillon Rambler, Royal Scarlet, a very pleasing variety with semi-double flowers of a striking colour, Lady Gay and others formed foils for dwarfer Roses at the base, such as Mrs. Tresham Gilbey, Golden Emblem, Dean Hole, The Beacon, a pretty cluster, single rose of crimson colour, Walter C. Clarke, Sovereign, etc. Messrs. W. Easlea and Sons relied mainly on the variety Thelma a pretty climber with shell-pink flowers, a seedling from Paul's Scarlet Climber. The H.T. and T. varieties that were grouped beneath it included Hoosier Beauty, Golden Ophelia, America and Madame Abel Chatenay.

The smaller class was for a group of Polyantha Roses in pots in which the Rev. J. H. Pemberton was first and Messrs. W. Cutbush and Son, second. The winning group was very formal, consisting of a circular, massed exhibit of such dwarf Polyanthas as Eblouissant, Koster's Orleans, Juliana, Echo and White Echo, interspersed with standards of Ella Poulson, Lady Reading and Grus an Aachen. Messrs. W. Cutbush and Son's exhibit, which some preferred to the other, had very floriferous plants of Orleans Rose, Greta Kluis and Baby Tausendschon.

The Nurserymen's groups of Roses arranged on tabling were the best features of the exhibition and they were by such noted firms as Mr. Elisha J. Hicks, Mr. George Prince and Messrs. B. R. Cant and Sons, Ltd., who were awarded the prizes in the order of their names. Mr. Hicks had most material, but the arrangement served well to display the merits of each vase, whilst the quality was exceptionally good. Four columns of Roses, one of Madame Butterfly, two of Maréchal Niel and the other of Mrs. Herbert Stevens were in the front row. At the back of the group were splendid bunches of cluster Roses, such as Edith Cavell, Double Orleans, Coral Cluster and the Golden Harrisonii. In the body of the exhibit were vases of Clovelly, Frau Karl Druschki, Madame Abel Chatenay, America, Chas. E. Shea, Climbing Lady Hillingdon, and other choice sorts. Mr. George Prince also utilised ramblers as a background, and this type of Rose was utilised freely in the general collection. Pax was shown finely, also Souvenir de Cladius Pernet, Madame Butterfly, K. of K., and Mrs. E. Mawley. Messrs. B. R. Cant and Sons' exhibit was noteworthy for the splendid vases of Paul's Scarlet Climber at the back and the centre-piece—a basket of the golden Mrs. Beatty. Messrs. Chaplin Bros., Ltd., were the only exhibitors of six pillar Roses in pots, and were awarded first prize, with such varieties as Dorothy Perkins, The Beacon, Blush Rambler, Coronation and Chatillon Rambler.

Two classes were provided for cut blooms shown in exhibition boxes; they were for twenty-four blooms, in not fewer than eighteen varieties, and for twelve blooms of any variety, respectively. Messrs. B. R. Cant and Sons had the better of two collections, Mr. Elisha J. Hicks being their opponent. Notable varieties in the premier exhibit were Covent Garden, Joan Cant, a big, blush bloom, Sovereign, Madame Butterfly, Betty Uprichard, Queen Alexandra, Lady Roundway, Phoebe and Margaret M. Wylie. The second prize was awarded to Mr. Hicks, who showed smaller but very refined blooms, notably of America, Rev. Page Roberts, Mrs. Foley Hobbs, Caroline Testout, Earl Haig and Lady Plymouth.

The best twelve blooms of any one variety were shown by Mr. A. T. Goodwin, Maidstone, who exhibited Maréchal Niel of superb quality, one of the flowers being adjudged the best bloom in the nurserymen's classes and awarded a Silver-gilt Medal. Mr. Hicks was placed second for the variety Clovelly.

Mr. Goodwin, showing Maréchal Niel and Climbing Frau Karl Druschki, beat Mr. Hicks in the class for two baskets of cut Roses, distinct. The best single basket of cut Roses, one variety, was shown by Messrs. Alex. Dickson and Sons, Ltd., who had the new Lady Margaret Stewart.

Mr. Goodwin won in the class for a basket of Roses of one or more varieties, again showing superb flowers of Maréchal Niel; second, Messrs. Alex. Dickson and Sons, Ltd., with Fred. J. Harrison, a fragrant, crimson Rose of fine shape.

The tables decorated with Roses offered nothing very original but they helped to make the show, and appealed especially, as they always do, to the numerous lady visitors. In the prize-winning exhibits were to be found Roses equal in quality to any in the show, and the ten exhibitors must have learned where the best Roses may be obtained. In the Nurserymen's section, Mrs. L. R. May, Waltham Cross, showed superb blooms of Madame Butterfly, with just a touch of greenery—Asparagus plumosus, and a few red sprays of Japanese Maple, to throw the flowers into strong relief. She had a centre bowl and six small vases; second, Mrs. C. Tisdale, Woodford Green, with Roselandia.

Amateurs' Classes.

The first prize group of Roses set up by Mr. E. J. Holland, Sutton, was a splendid exhibit. Unfortunately, the varieties were not named, but the best vases were of Golden Emblem, Coronation, Mrs. Foley Hobbs, Louise Crette and Gorgeous. Mr. H. R. Darlington, Potters Bar, was second. Mr. Holland was also first, with another admirable collection, in the class for twelve blooms in not fewer than six varieties, where he showed excellent specimens of Mrs. C. Lamplough, Earl Haig, Gorgeous and William Shean. Mr. Sydney F. Jackson. Epsom, was a very good second in this splendid class, and his best blooms were of H. V. Machin, William Shean and Mrs. C. Lamplough.

The boards of six blooms were not of quite such high quality as the foregoing, though Mr. C. H. Rigg, St. Albans, and Mr. John N. Hart, Potters Bar, who were placed equal firsts, had quite good collections of such sorts as Mrs. F. Dennison, W. Shean, Bessie Chaplin, Mabel Morse and Mrs. Foley Hobbs.

There were two particularly good exhibits in the class for six blooms of any one variety, where Mr. J. N. Hart and Mr. E. J. Holland both showed the lovely variety, Mrs. Foley Hobbs. There was little to choose between the two wholly admirable exhibits, but Mr. J. N. Hart's was slightly the better, and he was awarded the first prize for a beautifully fresh and even half-dozen blooms. In Mr. Holland's exhibit was found the best bloom in the amateurs' classes. Mr. C. Chalmers, Harrow, won the first prize in the class for growers of fewer than thirty pot Roses, with very good blooms of which Courtney Page, Mrs.

Foley Hobbs, and Mr. R. D. McClure were the very best. Although Mr. Sydney F. Jackson was alone in the class for six vases of cut Roses his exhibit would have been hard to beat. He arranged six very beautiful vases of mixed varieties.

The baskets of Roses were of very good quality. In the class for one variety, Mr. E. J. Holland and Mr. J. N. Hart were first and second, respectively, with beautiful baskets of Mrs. Foley Hobbs. Excellent blooms of mixed varieties were shown by Mr. H. Oppenheimer, Caterham, who was first, and by Mr. Holland, who won the second prize, in the class for a basket of any number of varieties.

Roselandia and Madame Butterfly were the favourite varieties in the Decorative classes. In in a tastefully arranged Dinner Table, Roselandia, with light sprays of purple-foliaged Maple and fronds of Maidenhair Fern were used by Mrs. Courtney Page, Enfield, who won first prize, while Mrs. F. Charlton, Yiewsley, was second with an attractive table of Madame Butterfly. The best exhibit of six vases of Roses, associated with Rose foliage, was a charming arrangement of Roselandia and purple foliage, by Mrs. Courtney Page; and Mr. Richard E. West, Reigate, was second with the variety Richmond.

RHODODENDRON.

The surprise and pleasure experienced by every visitor to the Rhododendron Show on Tuesday, April 27, must have given great satisfaction to the members of the Rhododendron Society by whom it was promoted. We imagine however, that the most sanguine of the promoters hardly expected the Royal Horticultural Society's Hall would be so well filled with fine exhibits on the occasion of their initial show.

The exhibition was a magnificent one and afforded ample evidence of the enthusiasm of those who have made a hobby of Rhododendrons. Amateurs possessing large gardens in the kindlier districts brought up an amazing variety of species and hybrids, demonstrating the wide range of form, size, and colour now available in this remarkable genus. Never before have so many distinct Rhododendrons been exhibited under one roof, thus enabling many visitors to see species only previously known to them by name.

Rhododendron experts were present from Scotland, Ireland, Wales and many parts of England and the Continent. The exhibits also came from widely distant places and in most cases the flowers travelled well.

We offer our heartiest congratulations to Mr. Lionel de Rothschild, the Hon. H. D. McLaren, Mr. J. C. Williams, Mr. G. Loder, Mr. P. D. Williams, Lady Aberconway, Lady Loder, Mr. T. Lowinsky, Admiral Heneage Vivian and others who did so much to make this new venture such an unqualified success that everyone will expect a similar function each year, but of two days' duration instead of one.

The Royal Horticultural Society's Floral Committee (B Section) met and granted awards to novelties.

R.H.S. Floral Committee.

Section B.—*Present*: Mr. Gerald W. S. Loder (in the Chair), Mr. W. J. Bean, Mr. R. D. Trotter, Mr. T. Hay, Hon. H. D. McLaren, Mr. F. G. Preston Mr. L. R. Russell, Mr. George Harrow, Mr. G. Reuthe, Mr. C. T. Musgrave, Mr. R. W. Wallace, and Mr. C. Williams.

First-Class Certificate.

Rhododendron haematodes. — A superbly coloured Rhododendron with tubular flowers of glorious blood-red hue. In the specimens shown the colour was particularly rich and the growth floriferous. R. haematodes was discovered by Delavay in 1885 and introduced by Forrest, from the Tali Range, Yunnan, in 1906, where it grows at an altitude of 12,000 feet. Shown by Mr. A. M. Williams, Werrington Park, Launceston.

Awards of Merit.

Rhododendron croceum.—A charming species discovered by Forrest in Yunnan in 1913. The flowers are of flattish, circular form, about two-and-a-half inches wide, light lemon-yellow, with purple marks at the base of the upper segment. The stamens are pale yellow with brown anthers. Leaves green above and dull grey beneath. Shown by Mr. A. M. Williams, Launceston.

Rhododendron campylocarpum × R. Fortunei—A lovely free-flowering hybrid and one that should make a grand garden plant. The widely expanded flowers have wavy margins and the colour is a delightful shade of peach pink with some brownish marks at the base of the upper segments, The flowers are borne on long pedicels in clusters of six or seven, and every twig seems to bear a cluster of blooms. Shown by Lord Swaythling, Townhill Park, Southampton.

Rhododendron astrocalyx.—A species somewhat like R. croceum but with a greener shade in the pale yellow colouring of the flowers. The latter have no basal marks, but the anthers are dark brown and the long pedicels greenish-yellow. The leaves are dark green above and light grey beneath. The truss exhibited carried sixteen flowers, but these were not so refined in form and texture as those of R. croceum. Shown by Mr. A. M. Williams.

Rhododendron Sir John Ramsden.—A garden variety of great beauty, bearing rounded, short, tuber flowers of a charming shade of salmon pink. The blooms, carried in fairly large trusses, droop very slightly and are produced with great freedom. Shown by Messrs. Waterer, Sons and Crisp.

Rhododendron Mrs. A. M. Williams.—A brilliant garden variety with wide flowers of a rich rose-pink shade veined with a deeper hue. On the outside of the flowers the colour is rich carmine and the flower buds, just before they open, are almost orange-carmine. A fascinating and attractive variety. Shown by Messrs. R. Wallace and Co.

Groups of Rhododendrons.

In the two classes for groups of Rhododendrons exhibitors were required to state the space they desired and, so far as possible, this was allotted. The groups might be composed of cut sprays or of pot plants or both and they need not have been grown entirely in the open. There were many exhibits in both classes and the general quality was admirable.

The best nurserymen's group was set up by Messrs. R. Gill and Sons and this was composed of cut sprays arranged on a considerable table space. Most of the other competitors had floor groups of plants in large pots and tubs. Messrs. Gill and Sons adopted a tall method of arrangement which allowed them to show a large number of sprays of valuable sorts. The species of yellow colouring, Rhododendron Dalhousiae, R. campylocarpum and R. ambigua for instance were prominent and they also had lovely trusses of R. Nuttallii. Amongst their showy hybrids was a large mass of Beauty of Tremough, while R. Thomsonii. R. Aucklandii and the vivid, rich orange-coloured R. Roylei were also exceedingly well shown.

The second prize was awarded to Messrs. Waterer, Sons and Crisp, who had an exceedingly attractive group of hybrids arranged on the floor with considerable skill. There were tall plants of Michael Waterer, a very bright ruby-crimson; Alice, a lovely rose-pink; White Pearl, of fascinating pale blush colouring Bernard Crisp, brilliant pink; Bagshot Wonder a large truss with depth of colouring; Ragged Robin, pink, and Sir John Ramsden, which received an Award of Merit. Messrs. R. W. Wallace and Co., who were third, had a splendid plant of Mrs. A. M. Williams (see Awards); Red Emperor, of vivid colouring; Pink Beauty, Geoffrey Millais, large white flowers; and Countess of Athlone, of delightful mauve colouring.

Admirable groups, apparently in the competition, were also arranged by Mr. W. C. Slocock, who had interesting and valuable seedlings, R. decorum, R. Fortunei and R. Aucklandii; Messrs. J. Cheal and Sons, who staged garden hybrids in variety; Messrs. M. Koster and Sons; Messrs. C. B. van Nes and Son: Messrs. R. and G. Cuthbert, who had a charming range of colouring in plants of R. malvatica and Kaempferi seedlings, and Mr. G. Reuthe, who showed many good Rhododendrons and Azaleas. Messrs. Hillier and Sons set up an attractive collection of Bamboos and flowering shrubs and Messrs. R. Veitch add Son had many choice flowering shrubs as well as Rhododendrons.

The response was equally good, in the amateurs' class for a group of Rhododendrons under the same conditions as the foregoing, and, judging from the fact that equal second and equal fourth prizes were awarded, competion was keen.

The first prize was awarded to Lady Aberconway, Bodnant, N. Wales, for a tastefully arranged group of a large number of rare and beautiful species and varieties. The large-flowered sorts included good sprays of Loder's White, Loderi, Cornish Cross, of rich ruby-crimson colouring, a deep rose coloured Fortune × Thomsonii, and a blush pink Alice × Aucklandii of great beauty. The species were well represented by R. Augustinii, R. campylocarpum, R. Thomsonii and a beautiful plant of R. Williamsianum, the dwarf species discovered by Wilson in Western China in 1908. It is a rounded bush, furnished concurrently with its purplish young shoots and relatively large, pale rose-pink, bell-shaped flowers.

Mr. Leopold de Rothschild, Exbury, Southampton, and Mr. A. M. Williams, Werrington Park, Launceston, were equal second; the former had a magnificent collection of handsome sprays. There were masses of R. Loderi and R. Loder's White, R. Sun of Austerlitz and R. Fortunei × Thomsonii of lovely pink colouring. Smaller in quantity, but of great merit were the vases of R. campanulatum, of good blue colouring; R. orbiculare, satiny shell-pink, bell-like flowers; Nuneham Pink and Azaleadendron Beauty of Littleworth. Mr. A. M. Williams exhibited the most extensive variety in the show. There was a magnificent vase of vividly-coloured R. haematodes while other species included R. rupicolum, R. Fittianum, R. scintillans and several examples of the R. Thomsonii series.

The other amateur collections were of considerable merit and did much to help make the very successful show. Lady Loder, Leonards'ee, Sussex, and Mr. H. Barclay Fox, Penjerrick, Cornwall, were placed equal fourth. Lady Loder had wonderful sprays of R. Loderi and R. Loder's Pink, as well as several seedlings of delicately beautiful colouring. Sir John Ramsden, Bt., Bulstrode Park, Bucks, included fine sprays of R. Loder's White and R. Nuttallii; Dame Alice Godman, South Lodge, Horsham: Mrs. Tremayne, Perranworthal, Cornwall; Vice-Admiral Walker-Heneage-Vivian, Blackpill, Swansea, who set up good vases of R. fragrantissima, R. Glory of Penjerrick and R. Aucklandii alba; and Col. R. Stephenson Clarke, Borde Hill, Cuckfield, all had meritorious exhibits.

The collections of a single truss each of twelve hybrids were shown in the Orchid annexe and Lady Loder was first with an admirable exhibit which included Loder's Pink, Loderi var. Coral, Loderi var. King George, Fortunei × Thomsonii and Fortunei × arboreum, blood red. Lady Aberconnay was second and her best trusses were of Loder's White and Loderi var. King George. The three species which won the first prize for Mr. P. D. Williams, Lanarth, St. Keverne, Cornwall, were Red arboreum, R. burmanianum and R. Aucklandii; while Sir John Ramsden was second with R. Thomsonii, R. Falconeri and R. Roylei.

Mr. E. G. P. Magor, Lamellan, St. Tudy, Cornwall, was first in the class for three hybrids, where he showed Gilian, Campanack, a cross between R. campylocarpum and R. Aucklandii, and Soulkew, a cross between R. Souliei and R. kewense. Sir John Ramsden, who was second, had a good truss of R. Doncaster × Loderi, a hybrid with much of R. Doncaster form and colouring.

The "Best Species" was a truss of Forrest's form of R. decorum, of lovely pale pink colouring, shown by Mr. P. D. Williams, and the "Best Hybrid" was an immense pink truss of apparently a cross between R, Loderi and R. Aucklandii, shown by Mrs. E. Lindsay Smith, Ashfold, Handcross.

Sprays or Trusses.

The remaining classes were for one truss or, in the case of the small-flowered species, spray of specified sorts, and the first prizes were won by the following:— R. Falconeri (Bhutan Griffiths, 1837), creamy white; and R. Wightii (Sikkim, Hooker, 1849), yellow, by Mrs. Tremayne.

There were no first prizes awarded for R. argenteum, R. grande, R. calophytum or R. lacteum; but the first prize for R. fictolacteum (N. W. Yunnan, Delavay, 1886), white with crimson blotch, was won by Mr. G. A. Johnston, Grampound Road, Cornwall. R. Aucklandii, syn. R. Griffithianum (Sikkim, Hooker, 1849), white or pinkish, shown by Mrs. Bolitho, Trewidden, Penzance; R. arboreum, blood red, shown by Mr. P. D. Williams; R. arboreum, white, shown by the Earl of Stair, Lochinch Castle, Castle Kennedy; R. niveum (Sikkim, Bhutan and Nepaul, Hooker f., 1849), mauve, shown by Mr. G. W. E. Loder; R. decorum (W. Szechuan, David, 1885), white or pale rose, shown by Mr. P. D Williams; R. orbiculare (Mupin, David, 1877), and W. Szechuan (Wilson, 1904), rosy red, shown by Mr. Lionel de Rothschild; R. campylocarpum (Sikkim and Nepaul, 1851), yellow, shown by Mr. G. W. E. Loder; R. neriiflorum (Yunnan, Delavay, 1885, and Tali Range, Forrest, 1906), deep crimson, shown by Mr. Lionel de Rothschild; R. Augustinii (Hupeh, Henry, 1885), purplish-blue, shown by Mr. E. G. P. Magor; R. Nuttallii (Bhutan, Booth, 1850), nankeen yellow, shown by Lord Swaythling; R. yunnanense (Yunnan, Delavay, 1884), pale pink, shown by Mr. J. B. Stevenson, Towers Court, Ascot.

The best Chinese or Himalayan Alpine species were R. scintillans (Yunnan, Forrest, 1913), purplish-lavender; R. Sargentianum (W. Szechuan, Wilson, 1903), yellow, and R. sphaeranthum (Yunnan, Forrest, 1914), rose-blush, Daphne-like, all three shown by Lady Aberconway. R. fragrantissimum, shown by Mr. P. D. Williams, was the best sweet-scented species and R. Schlippenbachii (N. E. Korea, Veitch, 1893), pink, shown by Mr. G. W. E. Loder, was the best deciduous species, while R. Robespierre of rich orange colouring shown by Mr. Lionel de Rothschild was the best deciduous hybrid. R. obtusum, (China, Fortune, 1844), variable in colour, shown by Sir John Ramsden, was the best evergreen Azalea.

R. Loderi, shown by Mr. C. E. Heath, Holmswood, Surrey, was the best cross between R. Aucklandii and a species, and Lady Aberconway was first with a cross between R. Luscombeanum and R. Aucklandii in the class for a hybrid cross. First prizes were won by Lord Swathling, for a R. Thomsonii hybrid; Mr. P. D. Williams, for a R. campylocarpum hybrid; Mr. J. C. Williams, Caerhays Castle, Cornwall, for a spray of R. cinnabarinum (Sikkim, Hooker, 1850), red and yellow flowers.

Six excellent specimens won the first prize for Mr. Lionel de Rothschild in the class for plants lifted or grown in pots. He showed Azaleadendron Glory of Littleworth, R. Isabella Mangles and types of R. Loderi. Messrs. R. W. Wallace and Co. were second with good hybrids.

Showing plants of R. calostrotum (N.E. Upper Burma, K. Ward, 1914), pink; R. spaeranthum and "F 21,756" Mr. Lionel de Rothschild was first with three plants of Alpine species. Sir John Ramsden, who included splendid trusses of R. Loderi and R. L. King George, was first in the class for six trusses of hardy hybrid Rhododendrons.

Supplementary Classes.

In view of the earliness of the season the Committee added seventeen additional classes to the schedule after the latter had been printed. Competition in these seventeen classes was much better than might have been expected, considering the few growers of these rare and choice plants.

There were seven entries in the class for a truss of R. apodectum (W. Yunnan, Forrest, 1912) or R. dichroanthum (Tali Range, Forrest, 1906), and the first prize was awarded to Mr. A. W. Williams, Launceston, Cornwall, for R. dichroanthum, whose flowers were the finest coloured-reddish-orange. Mr. J. C. Williams was placed second, also for R. dichroanthum. The latter gentleman was the only exhibitor in the class for one truss of R. Griersonianum (W. Yunnan, Forrest, 1917) and was awarded the first prize; the flowers of this species are, as exhibited, a beautiful brick-red colour. There was no exhibit in the class for one truss of R. insigne (W. Szechuan, Pratt, 1903). but two competed in that for one truss of R. Souliei (W. Szechuan, Soulié, 1893), in which Lady Aberconway and the Hon. H. D. MacLaren were placed first, winning easily. This flat, pink-flowered species is one of the most beautiful of Rhododendrons. These exhibitors were awarded the second prize in the class for one truss of R. lanatum (Sikkim, Hooker f., 1851), the sulphur flowers of which are dotted with crimson. Mr. J. C. Williams had the better of two exhibits in the class for one truss of any species of the Arboreum series, subseries Adenopodum, with R. argyrophyllum (W. Szechuan, Wilson, 1904), a very pleasing species with a compact truss of clear, rich pink blooms; second, Mr. P. D. Williams with R. hypoglaucum (W. Hupeh, Henry, 1896) which has white blooms and red anthers. In the class for one truss of any species of the Arboreum series subseries Arboreum. Mr. Gerald W. E. Loder was placed first also with R. argyrophyllum. His blooms were larger, but of paler colour than those shown by Mr. Williams in the previous class, and it seemed singular that R. argyrophyllum should figure in both the subseries. There were six exhibitors of one truss of any species of the Barbatum series, in which Mr. J. C. Williams was placed first for R. barbatum (Sikkim, Sykes, 1829), a very pretty pink Rhododendron of paler colour inside the flower and with black anthers. This same exhibitor was first in the class for one truss of any species of the Falconeri series, showing R. galactinum (W. Szechuan, Wilson, 1910), the big, blush flowers of which are heavily spotted with crimson and with a crimson base on the upper petal; the same exhibitor was second with R. fictolacteum (Yunnan, Delavay, 1886), a white species with purple spots and blotch. Lady Loder showed the best spray of any species of the Cinnabarinum series, her spray of typical R. cinnabarinum (Sikkim, Hooker, f., 1950) being much superior to any of the other five exhibited. The second prize was awarded to Mr. E. P. J. Magor for a pale form, the flowers being yellow, flushed with red. There was no exhibit of a spray of any species of the Heliolepsis series, but two entered in the class for one truss of any species of the Irroratum series, in which Mr. E. P. J. Magor was placed first for R. Magorianum (China, Wilson), with blush-pink flowers and black anthers. Mr. A. M. Williams was the only exhibitor of one truss of any species of the Neriiflorum series, subseries Haematodes, and was awarded the second prize. Mr. J. C. Williams took the premier award in the class for one truss of any species of the Metternichii series, showing R. Smirnovi (Caucasus, Sternberg, 1885), and Mr. Lionel de Rothschild was second with R. Metternichii var. pentamerum. Mr. J. C. Williams had the best of six exhibits in the class for one truss of any species of any subseries of the Taliense series showing the white R. Faberi (Mt. Omei, Wilson, 1904). Nine competed in the class for one truss of any species of any subseries of the Thomsonii series other than R. Thomsonii and R. campylocarpum, and Mr. A. M. Williams won the first and second prizes with R. croceum (Yunnan, Forrest, 1913) and R. astrocalyx (N.W. Yunnan, Forest, 1917) respectively, the latter having flat, yellow flowers tinged with red in the young stage. The biggest competition was seen in the class for one spray of any species of any subseries of the Triflorum series, for which an individual prize was not already offered. The first prize was awarded to Mr. J. B. Stevenson for the mauvy-lilac R. oreotrephes (Lichiang Range, Forrest, 1906), which has a red style and a few dots of a deeper colour in the interior of the flower. Mr. J. C. Williams was second with R. chasmanthoides (Yzeku, N. W. Yunnan, Forrest, 1904) of pale mauve with a lemon-dotted area in the lower petal and with white filaments.

The two classes for vases of sprays of flowering shrubs were well contested and filled with admirable sprays of flowers. Mrs. Bolitho was first in the class for evergreen species in which she showed beautiful sprays of Illicium religiosum, Embothrium coccineum, and Drimys Winteri. Col. R. Stephenson Clarke was first in the class for deciduous subjects, and he had excellent vases of Magnolia Brozzonii, Staphylea colchica, and a lovely pink Cherry named Yoko. In Lady Loder's second prize exhibit Magnolia obovata and Cornus Nuttallii were finely shown.

ROYAL HORTICULTURAL OF IRELAND

April 7 and 8.—This exhibition proved to be an eminently satisfactory function with an increased public attendance, some fine trade and special exhibits being, as they invariably are, the feature of the show, while amateurs' entries, especially in the Daffodil classes, were numerous.

Mr. J. L. Richardson was awarded a Gold Medal for his exhibit of Daffodils in one hundred varieties, among which Beersheba, Tenedos, Harpagon, and Ruby, with others choice sorts were conspicuous. In the amateur classes Mr. C. Coster, gardener to Mrs. Alfred West; Kilcroney, Bray, again won the Lord Ardilaun Perpetual Challenge Cup with thirty varieties among which Beersheba stood out pre-eminently; Mrs. West, Mr. C. W. Parr, Mrs. Butler, Miss Bird and Mrs. Vivian were the chief prize winners in the smaller Daffodil classes.

For twelve pans of alpines, distinct, Mrs. A. Jameson won the Challenge Cup presented by Mrs. Butler; Mrs. Butler winning Major Butler's Challenge Cup with twelve smaller specimens, and Mrs. B. Hamilton winning Lady Greer's Cup in the open class for a collection of alpines, on a space of twelve feet by four feet. Hardy cut flowers were generally well-shown; F. V. Westby, Esq., D.L. (gr. Mr. F. Simmons), won Capt. Riall's Challenge Cup for a collection of twenty-four kinds, including shrubs, Other winners in this section were Mrs. A. Jameson, Mrs. Bernard, Major Kelly (gr. Mr. J. McDermott), Col. Sir Frederick Shaw (gr. Mr. Thompson), Capt. Daly and Miss Wynne. Six vases of Rhododendrons were best shown by Mr. G. V. Hart, who had a fine example of R. Falconeri in his set; and by Mr. Westby.

Lord Cloncurry (gr. Mr. W. Hall) excelled in table decorative plants. Deutzias were best shown by Mr. Westby (grand specimens); the Governor-General of the Free State, who honoured the show by a visit on the second day, had heard what had been alleged of them, viz., that having travelled to the shows so often if put out on the road they would find their way to it themselves. That, however, is a libel on the plants seen now, these being the progeny of the much travelled originals. Mr. C. Wisdom Hely (gr. Mr. J. H. Orr) came second with choice specimens of D. Lemoinei, and he also had the best Schizanthuses. Competing for prizes offered by Messrs. Watson and Sons, the Killiney Nurseries, Killiney, for hardy flowering shrubs, Major Kelly and Sir Frederick Shaw were the prize winners; Spirea arguta was very noticeable, as it is indeed, at present, around Dublin. Roses from Mrs. West and Mr. Wisdom Hely, thus placed, were very good. Primulas and Polyanthuses were exceptionally abundant and good. Fruits were limited to well-kept samples of Bramley's Seedling and Newtown Wonder Apples and Uvedale's St. Germain Pears, for which Mr. E. D'Olier was first, and Lord Cloncurry second, the latter, with Mrs. McCabe (gr. Mr. J. McGauley), Mr. Gordon Joyce (gr. Mr. C, Dunne), Capt. Daly and Major

O'Heal Seagrave, D.S.O, (gr. Mr. J. Gilleran) being the chief winners in the vegetable classes.

Gold Medals were awarded to Mr. J. Lionel Richardson for his collection of Daffodils (as mentioned), and to the President, the Marquis of Headfort (gr. Mr. W. E. Trevithick) for a large collection of Rhododendron plants, chiefly the offspring of seeds collected by Capt. F. Kingdon Ward, among which R. sino-grande with leaves twenty inches long and eight inches broad, was very conspicuous. Silver-gilt Medals went to the Dublin Nursery, Co. Blackrock, Co. Dublin, and to the Rt. Rev. and Hon. B. J. Plunkett (gr. Mr. P. D. Reid) for grand groups of spring flowers; and Silver Medals to Sir Jas. W. Mackey, Ltd., Dublin, for a rock-edged bed of gay Darwin Tulips, etc.; and to Messrs. Chas. Ramsay and Son, Ballsbridge Nurseries, Dublin, for a group of greenhouse plants; a bronze medal being awarded to Mrs. Bland, Blandsfort, Abbeyleix, for Violets in variety. Certificates were awarded to Miss Darley, Bray (gr. Mr. Murphy) for a fine and ultra-floriferous Cyclamen, and to the Marquis of Headfort for seedling Primula, K.W. 5664.

PAISLEY FLORISTS'.

The annual show of the Paisley Florists' Society, which was held on Saturday, April 10, brought the spring exhibitions in Scotland to a close. There were forty-eight classes, and competition was keen in the Hyacinth and Daffodil section. Compared with last season the number of entries showed a slight increase and there was a marked improvement in the quality of the bloomsstaged.

The following were the principal first prize winners in the more important classes:—Mr. Duncan Graham, Paisley; Mr. E. G. Ross. Mr. Hector Fraser, Mr. T. Harvie, Mr. John Bowrie, Mr. A. McEwan and Mr. D. W. Keir.

Among the non-competitive exhibits was a large collection of Cinerarias, Daffodils and Primulas from the Corporation of Paisley (Mr. I. M. Fleming, superintendent), which occupied the platform, and twenty-four varieties of large, Trumpet, Barrii, Incomparabilis and Leedsii Daffodils, grown in the open, by Mr. Davidson, gardener to Sir John Reid; while traders were represented by Messrs. James Laidler and John McFee, Paisley, and Messrs. Austin and McAslan, Glasgow. These exhibits consisted of Hydrangeas, Azaleas, Cyclamens, Polyantha Roses, Cinerarias, Hyacinths and Daffodils.

*** *Owing to pressure on our space we are compelled to hold over several reports of Spring Shows.*

Obituary.

Alex. E. Campbell.—This well-known Scottish horticulturist who had been tenant of Cove Gardens, Gourock, for fifty years, passed away on the 18th ult., after an illness lasting ten days. He specialised in the culture of Gladioli and was a successful exhibitor from the early seventies to the close of last century. During the same period deceased raised the Tomato named Comet, which was claimed to be the parent of most of the smooth-skinned varieties of the present day.

Samuel McGredy—The news of the death of this amous Irish Rosarian has come as a great shock to those who knew him and admired his racy humour and robust appearance. We understand that death was due to heart failure and occurred suddenly on Sunday last, depriving the world of one of the most successful of modern raisers of new Roses. As founder and senior partner of the firm of Messrs. Samuel McGredy and Son, of Portadown, Mr. McGredy became famous many years ago as a clever grower, successful exhibitor and raiser, and his prowess suffered no diminution as the years passed. In our issue of July 5, 1924, we published an appreciation of Mr. S. McGredy, and on p. 316 of the present issue we give the portrait of the man who gave to the world such charming Roses as Golden Emblem, The Queen Alexandra, Mrs. Herbert Stevens, Mrs. H. Morse, Mabel Morse, Florence Izzard and Emma Wright. Although best known by reason of his Roses Mr. McGredy did not confine his attention wholly to the national flower, but cultivated large stocks of fruit trees, forest trees, alpine plants, etc., at the Portadown Nurseries. We believe his firm has received nearly fifty gold medals from the National Rose Society for new Roses. The loss sustained by the death of Mr. McGredy is an international one, as he and his Roses were almost as well known on the continent and in America as in England and Ireland. Rosarians everywhere will deplore the sudden demise of a man who appeared to be in the prime of life and the best of health and will join us in sympathy with the family so suddenly bereaved.

George H. Nichols.—An unusual scene was witnessed in Merrow Churchyard on Friday, April 23, when four hand-bell ringers stood at the corners of a grave and rang a last farewell to Mr. George Nichols, who, after a day's illness, passed away suddenly on the previous Tuesday. Mr. Nichols was for thirty years gardener to F. Baring-Gould, Esq., at Merrow Grange, near Guildford. Successful as he was as an all-round gardener, his interests were not wholly centred in horticulture. Bell-ringing, bees and bowls claimed a share of his time and attention, while in earlier years he was a familiar figure in local cricket. The sympathetic tribute of regard paid to his family and of respect to his memory was remarkable. A very large company gathered in the church and by the graveside and included Mr. Baring-Gould and representatives of several societies. Mr. W. F. Binfield represented the Guildford Chrysanthemum Society; the editor of the *Monthly Journal* the Guildford and District Gardeners; and Mr. Joy, a fellow gardener and an old schoolmate, the Bramley Bowling Club. There were over forty beautiful floral tributes. The late Mr. Nichols was a keen supporter of the Guildford Gardeners' Association, a regular attendant at all its lectures, and in quiet ways gave it every help and encouragement.

THE LATE MR. GEORGE REYNOLDS.

George Reynolds.—It is with the deepest regret we learn of the death of this estimable gardener whose services at Gunnersbury Park, Acton, under members of the Rothschild family, extended to over fifty years. His more intimate friends knew for a long time that he was suffering from an incurable disease; and he passed away at Gunnersbury Park on Tuesday, April 20, and was buried on Friday, the 23rd ult. in the South Ealing cemetery. Mr. Reynolds was held in the highest esteem, for he had a most lovable nature, a pleasing manner, and an engaging personality. He was a gardener of exceptional ability, and maintained the estate at Gunnersbury Park in a condition of great perfection. Mr. Reynolds was especially interested in the welfare of the orphans of gardeners and for long years was a member of the Committee of the Royal Gardeners' Orphan Fund, for which institution he raised annually considerable sums of money. At one time Mr. Reynolds exhibited extensively, showing indoor and hardy fruits, and various flowering plants, especially Vanda teres and Gloriosa Rothschildiana. This capable gardener was also very successful in the cultivation of the Fig, of which large quantities were grown at Gunnersbury Park. The Rothschild estates at Gunnersbuty Park and Gunnersbury House have quite recently passed into other hands for use as a pubilc park and pleasure grounds, and it is a melancholy coincidence that one who has been concerned for so long in their upkeep should conclude his life's work at almost the same time.

Johan B. Van der Schoot.—We regret to learn of the sudden death, on April 23, of Mr. J. B. Van der Schoot, the well-known Dutch bulb-grower, of Heemstede, Haarlem, at the age of fifty-eight. The funeral took place on the 27th ult., at the Catholic church of St. Bavo, Heemstede.

ANSWERS TO CORRESPONDENTS.

Ferns attacked by Insects.—*Hortus.* The Ferns are suffering from an attack of scale insects, and it will be a very difficult matter to eradicate them without injuring the Fern fronds. You might dip the plants in a Nicotine and soft soap solution on several occasions, and, where possible, sponge off the scales, which are mostly to be found along the mid-rib of the fronds. In the case of Ferns extreme cleanliness is desirable right from the time they commence to make new growth.

Names of Plants.—*E. C. V. G.* 1, Ilex Aquifolium var. ferox argentea; 2, I. A. var augustifolia aureo-marginata; 3, I. A. var. argentea regina; 4, I. A. var. argentea medio-picta; 5, I. A. var. aurea regina; 5, I. A. var. albo-variegata; 7, Pinus Laricio; 8, Abies nobilis; 9, A. lasiocarpa; 10, Paeony species, send in flower; 11, probably Megasea cordifolia; 12, Primula involucrata; 13, Polygonum sachalinense; 14, Berberis Aquifolium; 15, Pyrus species (too small to identify); 16, Taxus baccata var.; 17, Taxus brevifolia; 18, Skimmia Fortunei; 19, Aucuba japonica variety limbata; 20, A. japonica; 21, Picea excelsa variety. *A. M.* The evergreen shrub is Daphne Laureola, and the other, Amelanchier canadensis.

Weed from a Lawn.—*R.* The small specimen with crowded leaves is Chrysanthemum Leucanthemum (Ox-Eye Daisy). It is of frequent occurrence in lawns and pastures. Nothing was stated about it, nor were any questions asked, and we have merely presumed it was taken from a lawn. If the object is to destroy it, this may be done with a copious dusting of lawn sand or sulphate of ammonia on a dry day, after the dew has dispersed, and when there is a prospect of two dry days for the remedy to act. The crown or rootstock is stout, and the plants may grow again; but in all such cases a second dusting should be given in order to kill the leaves and exhaust the plant.

Communications Received.—W. H.—H. T., Penryn—W. E. B.—C. and Co.—W. A. L.—A. J. C.—C. C. M.—J .E.—W. A.—J. L.—Neath.—W. S. W.—G. K. P.—W. J. G.—A. D.—E. R. D.—J. C.—T. W.—F. T. S.—N. E. B.—M. W.—R. B.—J. H.—Enquirer—L. C.

MARKETS.

COVENT GARDEN, Tuesday, April 27th, 1926.

Plants in Pots, etc.: Average Wholesale Prices.

(All 48's except where otherwise stated).

	s. d. s. d.
Adiantum cuneatum per doz.	12 0-15 0
—elegans	12 0-15 0
Aralia Sieboldii	9 0-10 0
Araucarias, per doz.	30 0-42 0
Asparagus plumosus	12 0-18 0
—Sprengeri	12 0-18 0
Aspidistra, green	36 0-60 0
Asplenium, per doz.	12 0-18 0
—32's	24 0-30 0
—nidus	12 0-15 0
Azaleas, 48's, each	4 0—6 0
Boronia megastigma, 48's, per doz.	30 0-36 0
Cacti, per tray —12's, 15's	5 0- 7 0
Cinerarias, 48's, per doz.	18 0-21 0
Crotons, per doz.	30 0-45 0
Cyclamens, 48's in variety, per doz.	24 0-30 0

	s. d. s. d.
Cyrtomium	10 0-25 0
Daffodils, 48's, per doz.	18 0 21 0
Genistas, 48's, per doz.	24 0-27 0
Hyacinths, large white, 48's, per doz.	21 0 24 0
Hydrangeas, pink, 48's, per doz.	24 0-30 0
—white, 48's, per doz.	24 0-27 0
—blue, 48's, per doz.	24 0-36 0
Marguerites, 48's per doz.	18 0-21 0
Nephrolepis in variety	12 0-18 0
—32's	24 0-36 0
Palms, Kentia	30 0-48 0
—60's	15 0-18 0
Pteris, in variety	10 0-15 0
—large, 60's	5 0- 6 0
—small	4 0- 5 0
—72's per tray of 15's	2 6- 3 0

Cut Flowers, etc.: Average Wholesale Prices.

	s. d. s. d.
Adiantum decorum, doz. bun.	10 0-12 0
cuneatum, per doz. bun.	8 0-10 0
Anemone fulgens, per doz. bun.	2 6- 3 6
Arums (Richardias) per doz.	5 0—6 0
Asparagus plumosus, per bun., long trails, 6's,	2 0- 3 0
med. sprays	1 6- 2 6
short	0 9- 1 3
—Sprengeri, bun long sprays	1 6- 2 0
med. „	1 0- 1 6
short „	0 4- 1 0
Carnations, per doz. blooms	4 0—5 0
Croton leaves per doz.	1 9- 2 6
Daffodils, Emperor, per doz. bun.	5 0—6 0
—Grandee, per doz. bun.	— —5 0
Fern, French, per doz. bun.	10 0-12 0
Forget-me-not, per doz. bun.	6 0- 8 0
French Flowers—	
Anemones, St. Brigid, per doz. bun.	3 0—4 6
—double red, per doz. bun.	6 0—7 0
—Parma Violets, per bun.	3 6—4 0
—Ranunculus, scarlet, per doz. bun.	4 0—5 0
—Star of Bethlehem, (Allium), per doz. bun.	3 0—3 6
Gardenias, 12's, 18's, per box	4 0—5 0
Gypsophila	4 0—6 0
Heather, white, per doz. bun.	10 0-12 0
pink, per doz. bun.	9 0-12 0
Iceland Poppies, per doz. bun.	6 0—7 0
Iris blue, per doz. blooms	1 6—2 6
—mauve, per doz. bun.	15 0-18 0
—white, per doz. bun.	24 0-30 0
—yellow	30 0-36 0

	s. d. s. d.
Ixias, red	4 0- 5 0
—mixed	4 0—5 0
Lilac, white, per doz. sprays	6 0—7 0
Lilium longiflorum long, per doz.	4 0—5 0
—speciosum rubrum, long, per doz. blooms	3 6—4 0
—short, doz. blooms	2 6—3 6
Lily-of-the Valley, per doz. bun.	24 0-36 0
Narcissus poeticus, per doz. bun.	5 0—6 0
Orchids, per doz.	
—Cattleyas	24 0-30 0
—Cypripediums	5 0—7 0
Roses, per doz. blooms—	
—Madame Abel Chatenay	3 6—4 6
—Molly Sharman Crawford	3 6—4 6
—Richmond	3 0—5 0
—Columbia	3 0—5 0
—Golden Ophelia	3 0—4 6
—Sunburst	3 0—4 6
—Mrs. Aaron Ward	2 6—3 0
—Madame Butterfly	4 0—5 0
Statice sinuata per doz. bun.	5 0—6 0
Smilax, per doz. trails	8 0—9 0
Stephanotis, per 72 pips	3 0—3 6
Stock, double white, per doz. bun.	12 0-15 0
Sweet Peas, per doz. bun.	12 0-18 0
Tulips—	
—Darwins, per doz. bun.	9 0-15 0
—Clara Butt	9 0-18 0
—W. Copland	9 0 15 0
—Bartigan	9 0-12 0
—Farncombe Sanders	9 0-12 0
Violets	3 0—4 0

REMARKS.—With the exception of Irises and Darwin Tulips, supplies of which have exceeded the demand, more especially the latter owing to heavy supplies from home-growers and the Channel Islands, flowers are getting scarcer. The colder weather has checked the supply of Carnations and these flowers have advanced most in price during the past week. Prices for Roses are also firmer, especially for white and red blooms which have become scarce suddenly. Richardias (Arums) and Lilium longiflorum are advancing in price, the supplies being much shorter than for some weeks past. Gardenias and Stephanotis are now taking the place of Camellias, which are practically finished. Gladioli Blushing Bride and Peach Blossom are the newest subjects in this department. Daffodils have been arriving in good quantities from Scotland but their prices are firmer. The varieties are Emperor, Grandee and Barrii. Narcissus poeticus has been greatly welcomed, but prices for these flowers have been high owing to a very limited number; much better supplies are expected during the coming week. Double White Stock from home-growers is very useful as the supplies of Stock from France are getting finished. The most reliable blooms from French growers are Gypsophila, yellow Marguerites, Ixias, Parma Violets, Statice sinuata and a few Paeonies.

Vegetables: Average Wholesale Prices.

	s. d. s. d.
Artichokes, green per doz.	2 0—3 0
Asparagus, English—	
—Evesham	3 0—6 0
—Devon	4 0—8 0
—Cambridge	1 0—2 0
Asparagus—	
—Cavaillon	1 2—1 3
—Lauris	1 3—2 6
Beans—	
—Madeira, per basket	4 0—4 6
Boxes	5 0—6 0
—Guernsey and Worthing forced	1 6—2 0
Beets, per cwt.	7 0—9 0
Cabbage, per doz.	2 0—3 0
Cauliflowers, per doz.	3 0—6 0
New Carrots, per doz. bundles	7 0—9 0
Chicory, Belgian, per lb	0 6—0 8
Cucumbers, per doz.	4 0—4 6
—Flats	12 0-16 0
French Cabbage, crates 24's	4 0—5 0
Endive, per doz.	1 6—2 6
Horseradish, per bundle	1 6—2 0
Lettuce, round, per doz.	1 0—2 0
—long, per doz.	3 0—4 0
—Dutch, per crate	3 0—5 0
Marrows, Forced per doz.	8 0-15 0
Mint, forced	2 0—4 0
Mushrooms, —French	1 6—2 0
Mushrooms, —cups	2 0—3 0
—Broiler	1 6—2 0

	s. d. s. d.
Onions—	
—Dutch	8 0—8 6
—Egyptian	9 0-10 0
—Valencia	8 0-10 0
Parsnips, per cwt.	5 0—6 0
Peas, Forced	1 0—1 6
Peas, French crate	3 6—5 0
Potatos—	
—Dunbar	7 6—8 0
—King Edward, per cwt.	5 6—7 6
—others	3 6—5 0
New Potatos—	
—Spanish, per cwt.	18 0-19 0
—Algerian per cwt.	12 0-14 0
—Azores, per case	12 6-15 0
—Canary Island	10 0-15 0
—Guernsey	0 3 0 4
—Scilly, per lb.	0 2½-0 4
Rhubarb, forced, per doz. bundles	1 6—1 9
—outdoor, per doz.	8 0—9 0
Spinach, per bushel	4 0—4 6
Spring Greens, per bag	2 6—3 6
Tomatos, Canary Islands Best	20 0-30 0
—English, pink, per lb.	2 0—2 3
—pink and white, per lb.	— 2 0
—blue, per lb.	— 1 6
—white, per lb.	— 1 6
—Guernsey, per lb.	1 9—2 0
Turnips, per cwt.	5 0—7 0
—new, per doz. bunches	8 0—9 0
Turnip Tops, per bag	3 6—4 0

Fruit: Average Wholesale Prices.

	s. d s. d.
Apples, Cooking—	
—Bramley's Seedling	10 0-14 0
Apples, American	
—Albermarles brl.	35 0-36 0
—Oregon Newtown	13 0-15 0
—Winesap	8 0-10 0
Apples, New Zealand—	
—Cleo	12 0-15 0
—Cox's	10 0 18 0
—Ribston Pippin	12 0-15 0
—Jonathan	12 0-14 0
Apples, Tasmanian—	
—Cox's	12 0-16 0
—Ribston Pippin	10 0-11 0
—others	11 0-14 0
Apples, Victorian	
—Dunn's Favourite	10 0-11 0
—London Pippin	10 0-11 0
—Jonathan	11 0-12 6
Bananas	12 0-22 6
French Cherries, crate	6 0-12 0
Figs, forced, doz.	6 0-24 0
Gooseberries, per lb.	1 0—1 3
Grapes, Belgian—	
—Gros Colmar	3 0—5 0
Grape Fruit,	
—Jamaica	30 0-40 0
—Florida	40 0-50 0

	s. d. s. d.
Lemons, Messina, per box	9 0-10 0
—Naples, box	14 0-20 0
Oranges—	
—Californian	30 0-35 0
—Denia	12 0-35 0
—Murcia	12 0-35 0
Peaches, Belgian, per doz.	9 0-24 0
Pines	2 0—4 0
—Almeria	— -21 0
South African fruits—	
—Josephine	5 0—6 0
—Nelis	4 6—6 0
—Duchesse	4 0—6 0
—Comice	7 0-10 0
Australian grapes—	
—Red Prince	20 0-22 6
—Black Malagar	— -21 0
Australian pear—	
—Beurré Bosc, per tray	6 0—7 0
Australian plums, tray	3 6—6 0
South African Grapes—	
—Barbarossa	7 0—8 0
—Harab Turki	10 0-12 0
—Red Hannepoot	4 0—7 0
—Waltham Cross	8 0-10 0
Strawberries, per lb.	5 0-12 0

REMARKS.—Business has been brisk during the past week, and a fair volume of trade has been transacted. Consignments of South African fruits are heavy and meeting a good demand. Apples, Grapes and Pears from Australia are in fair supply fruits in good condition are selling well. Choice vegetables, such as Asparagus, Beans, Peas and new Potatos are a better trade. Mushrooms remain in steady demand. Salads are wanted and selling at better prices. Green vegetables are more plentiful and the prices quoted are lower. New Potatos from Spain, the Canary Islands and the Azores are selling well at comparatively reasonable prices. Trade in old Potatos is quiet.

GLASGOW.

With the close of the forced Tulip season and the arrival of large quantities of out-door blooms, prices have gone from bad to worse. Throughout the week Darwins were only worth from 2d. to 4d. per bunch of 6's, and special qualities made 6d. to 8d. White Swan ranged from 1d. to 4d. and Guernsey blooms in fine condition averaged 6d. to 9d. per dozen. Daffodils continued cheap round 2d. to 4d. per dozen; ornatus at one time dropped to 1d. per bunch, but by Friday values had practically recovered, as follow:—Ornatus, 2½d. to 4d.; Barrii conspicuus, 2½d.; Grandee, 3d.; Emperor, 4d., specials, 5d.; Pheasant Eye, 4d. to 4½d.; and Olympia, 8d. A first consignemnt of Sweet Peas grown at Loan's Nursery were disposed of at 1/- per bunch. The stems were short, and while the colour was good, the flowers left much to be desired. Carnations varied from 2/- to 4/6 per dozen; Roses, 3/- to 6/-; Richardia, 3/-; Lilium longiflorum (Harrissii), 3/- to 5/-; Smilax, 1/6 to 2/6; Lilac, special white, 5/- to 6/- per dozen sprays, and coloured varieties, 4/- to 5/-. Guernsey growers sent daily supplies of Iris in first-class condition which sold at the following prices:—Franz Hals, 2½d. for 6's; Rembrandt, 4d. to 6d.; Auton, 4½d. to 6d.; filifolia, 3d. to 6d.; and Imperator, 10d. to 1/-. Bedding Pelargoniums (Geraniums) in pots made 7/- per dozen, and all other bedding plants were purchasable at 1/- to 1/3 per box. Tomato plants realised 2/- per dozen, and Sweet Peas, 2/- per dozen packets of six.

In the fruit market 16/- per pound was paid for the first consignment of Scotch Strawberries from Buchanan Castle Gardens, Drymen. American Apple supplies are now restricted to some half-dozen varieties, and prices keep firm at 28/- to 34/- per barrel for Canadian Russet; 35/- to 45/- for U.S. Albermarle, 22/- to 27/- for Gano; 21/- to 26/- for Ben Davis; while Oregon Newtowns ranged from 12/6 to 17/6 per case, and Winesap from 10/- to 14/-. Prices for Californian Navel Oranges were steady at 25/- to 30/-; and Valencia counts were quoted as follow:—300's, 12/- to 20/-; 240's, 14/- to 22/-; 360's and 504's, 10/- to 16/-; and 420's, 22/- to 30/-. Murcia 300's, 16/- to 22/-; 240's, 18/- to 24/-; Jaffa, 21/- to 24/6. A good business was done in South African fruits which continue to arrive in large quantities. Grapes in particular were well packed and in prime condition. Waltham Cross, a white variety with slight Muscat flavour, sold from 12/- to 16/- per tray of 10 lbs, and Red Hannepoort, 10/- to 14/-. Pears: Fotelle, 90's, made 12/- per case; Beurré Hardy, 5/6 to 7/-; Beurré Bosc, 5/6 to 6/6; Beurré Diel, 4/9 to 5/6; Keiffer, 3/6 to 4/-; Doyenne du Comice, 8/- to 9/-; Winter Nelis, 6/- to 7/-; Louise Bonne of Jersey, 5/6 to 6/6; and Glou Morceau, 5/6 to 7/-. Kelsey Plums were worth 7/- to 10/6; Porto Rico brands of Grape Fruit made 26/- to 28/-; and Blue Goose brand, 28/- to 32/-. Murcia Lemons, 300's, made 16/- to 22/-; 240's, 18/- to 24/-; Palermo, 300's, 9/- to 12/-.

Apart from Rhubarb, there was little movement in vegetable prices. Those for forced Rhubarb improved to 12/-, and for out-door Rhubarb to 10/-; and Polmont-grown, 24/-. Lettuces were cheap at 2/- to 4/- per crate; and prices for Guernsey Tomatos further declined to 2/- per lb. Cucumbers were worth from 7/- to 8/- per dozen. Asparagus, 1/- to 1/3 per bunch; Mushrooms, 2/6; French Beans, 1/4 to 1/6; Radishes, 2/6 to 3/-; Turnips, 9d. and 10d.; and Carrots, 10d. to 1/-.

GARDENING APPOINTMENTS.

Mr. Philip E. Hulse, previously gardener to the late Viscount Leverhulme, the Hill, Hampstead, N.W., as gardener to Lord and Lady Mildmay, Shoreham Place, nr. Sevenoaks, Kent. (Thanks for 2/- for R.G.O.F. Box).—EDS.

Mr. R. May, for the past seven years gardener to Mrs. Lillingston, Ulverscroft, Leicester, and previously at Fairfield, Newbridge, Bath, as gardener to Mrs. Feichmann, Sitka, Chislehurst, Kent. (Thanks for 2/- for R.G.O.F. Box).—EDS.

Mr. David Thompson, for the past sixteen years gardener to A. Swingler, Esq., Smalley Hall, nr. Derby, as gardener to the Right Hon. Lord Crawshaw, Whatton House, nr. Loughborough, Leicestershire. (Thanks for 2/6 for R.G.O.F. Box).—EDS.

CATALOGUES RECEIVED.

J. B. RIDING, The Nurseries, Chingford.—Dahlias, Chrysanthemums, Violas, etc.

CLARENCE ELLIOTT, LTD., Six Hills Nursery, Stevenage, Herts.—Alpine and herbaceous plants.

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SCHEDULES RECEIVED.

SEVENOAKS HORTICULTURAL AND FLORAL SOCIETY.—Exhibition to be held at Knole, on Wednesday, July 21.—Secretary, Mr. H. Lazell, Edenhurst Gardens, Oak Hill, Sevenoaks.

BATH AND DISTRICT HORTICULTURAL SOCIETY.—Exhibition to be held on Wednesday and Thursday, July 14 and 15, at the Victoria Park.—Secretary, Mr. F. J. Cashnella, 7, Cambridge Place, Bath.

LEEDS PAXTON SOCIETY. Chrysanthemum exhibition to be held in the Town Hall, Leeds, on Friday and Saturday, November 12 and 13.—Secretary, Mr. F. Stabler, Cookridge Hall Gardens, Horsforth, Leeds.

LIVERPOOL HORTICULTURAL ASSOCIATION.—Summer show to be held at the Corn Market, Brunswick Street, Liverpool, on Wednesday and Thursday, July 14 and 15.—Secretary, Mr. W. D. Skinner, Brooklands, Waterloo Park, Waterloo.

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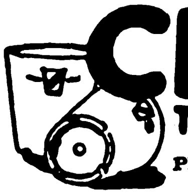

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THE
Gardeners' Chronicle

No. 2054.—*SATURDAY, MAY* 8, 1926.

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Average Mean Temperature for the ensuing week deduced from observations during the last fifty years at Greenwich, 52·3.

Actual Temperature—
The Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, May 5, 10 a.m. Bar. 30. Temp. 50°. Weather, Wet and dull.

Kew in 1925.

The removal in 1924 of the penny tax, an innocent distraction in the form of a visit to Kew was followed, as might have been expected, by a large increase in the number of visitors in 1925. Over a million-and-a-half people visited the gardens in that year—nearly 140,000 more than in the previous penny-tax year. The petty gesture which is all the tax can be—an earnest in small things of economies, which the Treasury appears to be impotent to practise in large—yields on the basis of the 1925 figures something like £6,000, and the objection to it is, of course, that those whose pence are few and progeny numerous must, perforce, at once deny themselves the pleasure and refreshment of a visit to Kew and the Treasury their contribution to this silly tax. Let us hope that if the 1926 figures show that the tax bars people from visiting these lovely gardens the Treasury will once again forego the penny. The outstanding event of the past year at Kew is undoubtedly the erection of a new house for Rhododendrons, built on the western side of the Temperate House. It is a commodious structure sixty feet by forty feet and twenty-five feet high, but those who have seen it are not enthusiastic as to its architectural, as apart from its utilitarian, merits. However, the Chinese Rhododendrons which are to occupy it will supply enough luxuriant beauty to divert attention from any shortcomings there may be in the architecture of the house itself. As the *Bulletin*[*] observes, the introduction of Rhododendrons from the mountains of S.W. China, due largely to the initiation of Mr. J. C. Williams of Caerhays, is perhaps the most important event in horticulture of the last decade and it is a special satisfaction to know that the explorers and collectors who have been instrumental in enriching our gardens with these treasures are all Britons—Forrest, Farrer and Kingdon Ward. How many of the introduced species and of the hybrids which are springing up in legions will prove hardy in all but the favoured south-western and similar districts, it is as yet impossible to say, but the experience already gained appears to show that at Kew at all events many of the recently introduced species must receive the shelter of a temperate house, and therein they show a tenderness not shared by the many fine kinds previously introduced by another great plant explorer, E. H. Wilson, from more northern regions. The practice adopted a few years ago of "staging" plants of special interest has been followed during the past year with great success and those who saw certain of them and in particular the exhibit of species and hybrids illustrating the origin of winter-flowering Begonias, are satisfied that in spite of the large amount of labour which these "exhibits" entail, the practice is well worth continuing and extending. The part played by Kew in developing the National Pinetum at Bedgebury deserves and receives notice in the *Bulletin*. During 1925, 315 species of Abies, Tsuga, Pseudotsuga and Larix were planted in the Pinetum and it is pleasant to record that nearly all have become established. The completion of the planting, which requires the setting out of some 1,700 young trees, will, it is expected, be finished during the present year. Everyone who reads the *Bulletin* must be impressed with the varied and admirable work which is being carried out at Kew, an institution in which every member of the Empire may and should take pride.

The General Strike.—The negotiations between the Mine Owners and the Miners' Federation having broken down, a general strike (including printing employees and transport workers) in sympathy with the latter, prevails. Owing to the abnormal conditions brought about by this state of affairs the present issue of *The Gardeners' Chronicle* has been made up (on May 5th) under great difficulties—more than half our staff being unable to reach our offices—and we have no idea when we shall be able to print, publish and distribute it. In due course we hope to supply our readers with their copies through the usual channels. *The Gardeners' Chronicle* was first published in 1841, and as there has been continuity ever since we hope the present unfortunate crisis will soon pass and that we may be able to preserve an unbroken sequence even though we may not be able to publish on the actual dates of the issues.

Royal Gardeners' Orphan Fund Dinner.—We are asked by the Secretary to announce that the Annual Festival Dinner of this Fund, which was to have been held on Wednesday, May 26 next, is unavoidably postponed to a later date, which will be announced so soon as the new arrangements are completed.

Training and Examination of Seed Analysts.—The fifth course of training will be held in the summer of 1926 at the Official Seed Testing Station, Cambridge, beginning on the 21st June and ending on the 20th July. A limited number of Seed Analysts will be admitted to the course on the following conditions:—(1) The course will be limited to persons who satisfy the chief officer of the station that they are fitted to take advantage of the instruction. They must be (*a*) nominated by seed firms who intend to offer employment to such nominees in their own seed-testing stations; or (*b*) recommended by Universities, Agricultural Colleges and Institutions; or (*c*) approved by the Council of the Institute. (2) An examination will be held on July 21 and 22, and certificates will be issued to students who satisfy the examiners. The examination will also be open to practical seed analysts who have not attended the course of training, provided that they are nominated, recommended or approved as described in paragraph 1. (3) The fee for the training course, including the examinations fee, will be £6 6s. 0d. The entrance fee for the examination only will be £1 1s. 0d. (4) Persons wishing to attend the course must apply not later than June 7, on entrance forms which are to be obtained from the Secretary, National Institute of Agricultural Botany, Huntingdon Road, Cambridge. Persons wishing to sit for the examination only must apply on similar forms not later than July 10.

Wakefield and North of England Tulip Society.—This northern florists' society will hold its ninetieth annual show on May 22, 23, 24 and 25, in the large Club Room attached to the Brunswick Hotel, Market Place, Wakefield. The Society had a fairly successful and prosperous year in 1925, and its modest turnover of £28 19s. 0d. left a balance in hand of £2 10s. 9d. The subscriptions for the year come to £23 14s. 6d., and the expenditure on prize money to £13 4s. 0d. Mr. C. W. Needham, the well-known expert in florists' Tulips, is President of the Society; Mr. R. Robinson, of Horbury, Mr. G. W. Bentley, of Castleton, and Mr. C. J. Fox, of Moseley, are vice-presidents; and Mr. S. F. Richmond, Ossett, Yorks, is the secretary. At the forthcoming show a Silver Challenge Cup will be offered for the best stand of nine florists' Tulips, and silver plate offered as special prizes in several other classes.

Imported Potatos.—Mr. W. Guinness, Minister of Agriculture, addressing the Devon Farmers' Union at Exeter on April 30, referred to the suggestion to control the imports of Potatos by licence. He stated that the imports of Potatos represented only about eight per cent. of our consumption, and a large proportion consisted of early varieties which did not really compete with our own crops. The Government were *also* precluded from considering this proposal by their definite promise not to tax food. Mr. Guinness stated that it was urgent to find some means for training skilled labour for the land, and the Prime Minister had consented to set up a special committee to see what could be done.

Flowering Plants of South Africa.—The issue for January, 1926, of *The Flowering Plants of South Africa*, comprising No. 21 of vol. VI, contains illustrations and descriptions of ten plants. Aloe krapohliana, t. 201, belongs to the section having either no stem or a very short stem below the dense rosette of leaves. The latter have marginal teeth and a few spines on the upper surface. The peduncle is covered with ovate, brown, membraneous bracts and bears characteristic reddish, tubular flowers with yellow and green markings at the ends of the perianth-segments. Paranomus diversifolius, t. 202, is a member of the Proteaceae, bearing two forms of leaves, the lower narrow and bipinnately divided, and the upper entire, spathulate-oblanceolate. The heads are four-flowered and surrounded by the upper leaves which become bract-like with a green acumen and purplish, thinner margins. Erythrina

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[*] *Bulletin of Miscellaneous Information.* Appendix 1, 1926, Royal Botanic Gardens, Kew.

ananthocarpa, t. 203, has fruits covered with prickles, hence the specific name; the inflorescence is very striking, forming an axillary raceme of scarlet flowers with greenish-yellow colouring at the ends. It is said to be a shrub three to six feet high and forming low thickets. Asclepias adscendens, t. 204, while an interesting plant, is not promising from the garden point of view, except that the flowers are said to be very sweetly-scented, especially towards the end of the evening. Dimorphotheca aurantiaca, t. 205, is well-known in cultivation and easily raised from seeds. Albuca Macowani, t. 206, a somewhat rare species of the genus, but of no decorative value for gardens, has dull yellow flowers banded with green. Hydnora africana, t. 207, is a parasite, growing principally on the roots of Euphorbia mauritanica. The underground stem is stout, five to six angled, and warty on the surface. The perianth is fleshy, tubular, externally rugose, and smooth within. There are three, or very rarely four, segments on the inner side of which is a snowy-white, spongy body. Asclepias fruticosa, t. 208, is a shrub bearing erect, puberulous branches and greenish-yellow, unattractive flowers. Euphorbia esculenta, t. 209, a dwarf, succulent, spineless species, bears at the apex of the growths inflorescences of sweet-smelling flowers that have no great decorative value. Pachycarpus schinzianus, t. 210, one of the handsomest of the plants illustrated in this issue, is said to grow from one to two feet high and produces a long, thick, underground stem which carries the plant over during its resting period, the aerial parts dying down in winter. The flowers are attractive and vary in colour from pure white and cream to a very pale pink, but all have a dark blotch on the inner face of the petals. The leaves are linear with very irregular outlines, some parts being contracted almost to the mid-rib; the margins are reddish and ciliated.

To Hasten the Sprouting of Seed Potatos.—An American plan of hastening the development of sprouts of seed Potatos is to soak the Potatos in ethylene chlorhydrin. The practice is recommended to growers in the southern States of America, who have to rely on the annually harvested tubers grown further north, without the resting period which such tubers naturally require before they will grow again. An account of the subject is published in the report of the Boyce-Thompson Institute at Yonkers, New York.

Honour for Belgian Grape Grower.—The rank of Officier de l'Ordre de Léopold has just been deservedly bestowed on M. Félix Sohie, who was the pioneer of Grape growing under glass in the Brussels district, an industry which has attained enormous proportions. M. Sohie was born at Hoeylaert (now the centre of the industry) in January, 1841, and studied at the Vilvorde Horticultural College. With his brothers he established his business in 1866, and began in 1870 the experimental heating of his vineries to obtain Grapes out of the usual season. These experiments were wholly successful, and the industry has since then made steady progress, not only with the Sohie brothers, but in the hands of many other growers, who were organised and united by the late M. Gérard op t'Eynde. There are now nearly 20,000 houses in the Hoeylaert district, producing annually over 5,000,000 kilogrammes of Grapes, chiefly Frankenthal, Gros Colman, Black Alicante, Foster's Seedling, Gros Doré, Royal, Gradisca and Muscat of Alexandria.

Antigua Botanic Gardens.—The *Report* on the Botanic and Experimental Stations at Antigua shows that owing to the extremely hot and dry weather experienced no improvements of any consequence could be carried out during the year under review, *i.e.*, to the end of March, 1924. As this was the fourth dry year in succession and little water was available for garden purposes severe losses among the plants was only prevented by the free use of mulchings of leaves. Notwithstanding this assistance the avenue of Pithecolobium saman suffered so greatly that it appeared doubtful if the trees could withstand another dry period. A hedge of Plumbago capensis, a feature of the Botanic Gardens, withstood the recurring drought and flowered abundantly, while Zinnias, Cosmos and French Marigolds seemed to enjoy the bright weather. Sugar and its bye-products are the chief agricultural exports from Antigua; other subjects of less importance include Onions, Tamarinds, Limes, Cotton and a few Oranges and Pineapples. At certain seasons of the year Yams form the staple food for all classes of the community, and eight distinct varieties appear to be grown, Oriental being the heaviest cropper. Allotment holders in Great Britain will learn with interest and envy that anyone desirous of obtaining an allotment on the Crown lands in Antigua may do so on payment of from £4 to £10 per acre, according to the quality of the land, but no one may hold more than four acres except by special permission of the Governor of the island.

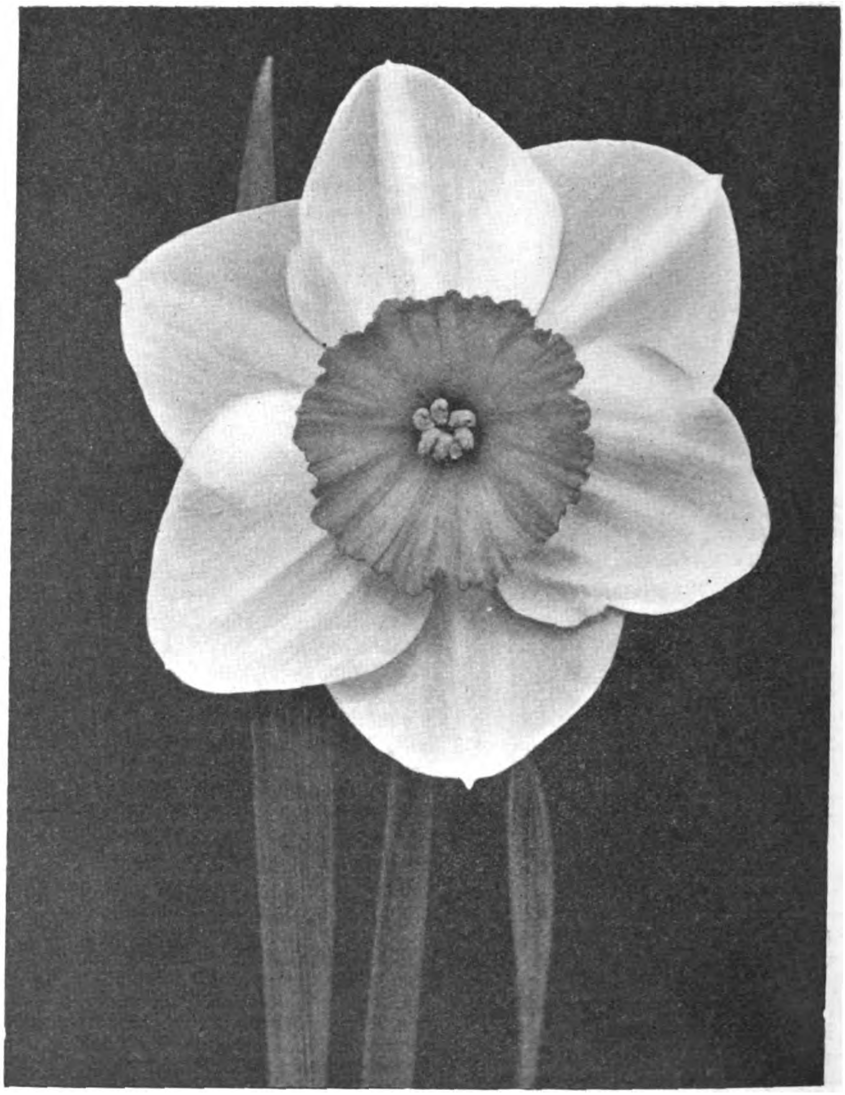

FIG. 167.—NARCISSUS NENE BEAUTY.

R.H.S. Award of Merit, April 7. Flowers white, crown yellow.

Narcissus Nene Beauty—This very fine Incomparabilis variety (Fig. 167) was exhibited by Messrs. R. H. Bath, of Wisbech, at the meeting of the Royal Horticultural Society held on April 7, when it received an Award of Merit. The broad, white perianth segments make up a flower of perfect form and ample proportions, while the wide, flat crown, of golden colour, is a particularly attractive feature.

Opening of the Jubilee Horticultural Exhibition at Dresden.—The opening of this large Horticultural Exhibition took place on the 23rd of April. It comprises not only the exhibition grounds of the city of Dresden but also large parts of the adjacent park known as "Der Grosse Garten." Everything was ready on the opening day. The large hall was filled with well-arranged flowering plants, among which the Azaleas, Rhododendrons and Hydrangeas predominated. In the smaller halls are fine collections of drawings and models giving a good survey of the present position of landscape architecture in Germany, as well as of the famous old gardens in Saxony. In addition, there are interesting science exhibits and a display of gardening implements. The main features of the show are in the open air. The whole grounds were laid out under the special direction of Mr. Gustav Allinger, a young landscape architect to whose splendid design the exhibition owes its artistic merits; it is difficult to judge them rightly at present, but it may be stated that there has never been a horticultural exhibition on the continent showing exhibits of this magnitude in the open. The dominant feature is the so-called Green Dome, a tower-like structure densely clothed with different climbers. From its top the visitor enjoys a magnificent view over the exhibition grounds, and a still more striking panorama of the city of Dresden and the surrounding country, with Saxon Switzerland in the background towards the east. From this tower the several garden features radiate. One section is a gigantic Rose garden with a fine building at its farther end; another contains a garden of blue Delphiniums ending in a large rest place with a fine Elm tree in its centre. Along these two huge parterres are wide stretches with beds for Dahlias and masses of annuals which should form great colour-gardens in summer and autumn. Besides these main features there are quite a number of small formal gardens for Roses and other plants, and also some house gardens of extraordinary interest. Mr. Allinger has designed some very characteristic gardens of quite a new style, one of which is called "The Coming Garden"—a restful place of particular charm. There is a fine park theatre, and a "Court of the Oaks," constructed with great skill round some of the beautiful old Oaks of the existing park. Visitors will appreciate the appropriate use of valuable objects of art, and the beautiful fountains of very modern design by Professor Poelzig. As a whole, the exhibition is of the greatest interest from an artistic point of view. If the Roses develop fairly well there should be some magnificent displays about the middle of July, and also when the annuals and the Dahlias are in full bloom. It is hoped that many foreign visitors will attend the exhibition. At present Germany cannot make large displays of new and rare plants such as may be seen at Chelsea or Holland Park, but at Dresden the whole artistic arrangement is in the open and therefore quite different from any exhibition seen before.

Southport Flower Show.—The third annual flower show promoted by the authorities of the County Borough of Southport will be held in the Victoria Park, Southport, on August 25, 26 and 27. The schedule of classes and prizes is now available and may be obtained on application to the Secretary, Mr. T. E. Wolstenholme, Town Hall, Southport. It contains two hundred and forty-four classes and the total value of the prizes offered is over £3,000. Handsome prizes and trophies are offered for rock and wall gardens, groups of flowering and foliage plants, perpetual-flowering Carnations, Dahlias, Gladioli, hardy border flowers, Pansies and Violas, floral decorations, Orchids, fruits and vegetables. A special attraction this year will be the National Rose Society's Jubilee Provincial Show which is to be held in Victoria Park in conjunction with the Southport Fête.

Afforesting the Sands of Culbin.—A remarkably striking illustration of what may be done by afforestation to stem the tide of advancing sand and reclaim waste land is furnished by the fine results accomplished by the Forestry Commission on the Culbin Sands. These sands still keep on the move from time to time, but since the great tragedy occurred much has been done to hold them in check by afforestation. It was in the autumn of 1694, and from the west, that the great sandstorm came which overwhelmed one of the fairest portions of the province of Moray. The late frosts or protracted droughts might destroy the crops in other parts of the district, but so deep and rich was the alluvial soil of Culbin that the crops there never failed, and the lands were known as "the granary and garden of Moray." Mr. George Bain, the historian of the catastrophe, informs us that "the storm came suddenly, with short warning—a man ploughing had to desert his plough in the middle of the furrow. The reapers in a field of Barley had to leave without finishing their work. In a few short hours the plough and the barley were buried beneath the sand. In terrible gusts the wind carried the sand amongst the dwelling houses of the people, sparing neither the mansion house nor the cot of the cottar. On the morning after the first night of drift the people had to break through the backs of their houses to get out. They relieved the cattle and drove them to a place of safety. To add to the horrors of the scene, the sand had choked up the mouth of the river Findhorn, which now poured its flood of waters amongst the fields and homesteads, accumulating in lakes and pools until it rose to a height by which it was able to burst the barrier to the north and find a new outlet to the sea, in its course sweeping to destruction the old village of Findhorn." The greater part of the Culbins is now included in the estate of Moy. Major Chadwick acquired the property in the sixties of last century and began tree-planting in 1871, and his son, Mr. James M. Chadwick, continues with enthusiasm the policy initiated by his father. Extensive planting otherwise has been carried out from time to time, and Marram grass has also been fixed, with a view to solidifying the treacherous sand; but trees, grass, etc., frequently get overwhelmed by the sand drift, which is likely to present an ever-increasing problem in the scheme of reclamation. The Culbin Sands proper cover an area of four miles long by two miles broad. Towards the north the stretch of derelict land is covered with great sandhills, often extending over two hundred feet in height; and in the intervening valleys parts of the old land surface occasionally come into view. The furrows made by the plough over 230 years ago are still visible.

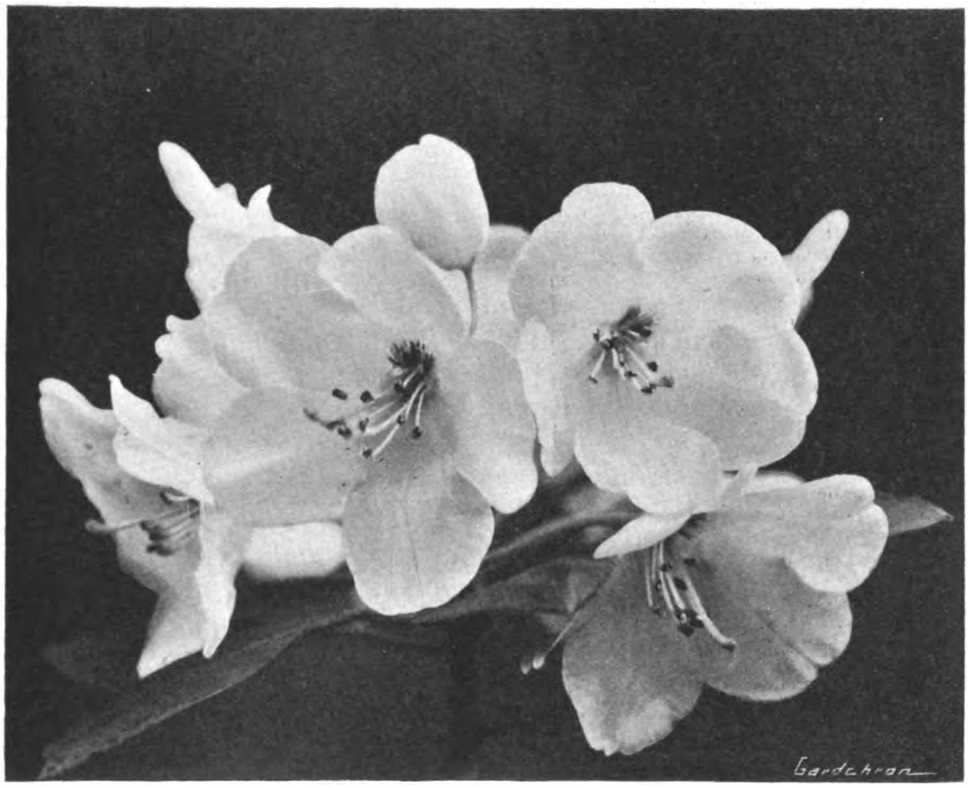

FIG. 168.—RHODODENDRON CROCEUM.

R.H.S. Award of Merit, April 27. Flowers pale yellow, with purple marks at the base of the upper segment. Shown by Mr. A. M. Williams (see p. 330.)

Appointments for the Ensuing Week.—Monday, May 10: United Horticultural Benefit and Provident Society's meeting. Tuesday, May 11: Southampton Royal Horticultural Society's show (two days); National Tulip Society's show; Jersey Gardeners' Society's meeting. Wednesday, May 12: Sheffield Chrysanthemum Society's meeting. Thursday, May 13: Manchester and North of England Orchid Society's meeting; Friday, May 14: Royal Horticultural Society of Ireland meeting.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Horticultural Society.*—The Horticultural season has opened magnificently, and it is already abundantly evident that the tide of skilful gardening is still rising with accumulated force. Accustomed as we are to the May glories of the Chiswick shows, we have never witnessed anything like what the exhibitors produced on Saturday. Azaleas, Orchids, stove and greenhouse plants, Roses, were all displayed in such profusion that nobody missed the Pelargoniums, of which the growers did not venture to present one; so fickle is fashion, and so steadily is the race of fancy Geraniums—admirably represented by Mr. Ayres and Mr. Ambrose—supplanting the others in public favour. In what profusion fine plants were supplied may be judged of from the fact that a new tent, containing 400 feet of additional tables, was pitched, and nevertheless the whole space was filled. A large part of our columns of to-day is occupied with a detailed account of this first Horticultural Show, which the foreigners present justly regarded as an exhibition as unapproachable in any other country than England as that within the Palace of Glass itself. To the extended remarks of our reporter we have but a word or two to add. Of novelties there was not much, but some of the plants were of high interest. First came Messrs. Veitch's Cantua dependens, the most glorious species that yet has reached us from the west; a shrub, as hardly as a Fuchsia, and far more gay, because of the rich mixture of yellow and purple and violet in its long tubular flowers. There appeared, among the Orchids, Colonel Feilding's famous Fox's Brush, a most charming new species of Aerides, with long, gay festoons of rosy blossoms. Hardly inferior in interest was the true Deutzia gracilis, from M. Baumann, of Ghent; a brilliant, graceful, hardy bush, from Japan, with snow-white flowers like those of the Syringa. We also noticed a new Billbergia, from M. de Jonghe, of Brussels, not well enough grown to show whether it will become, as it promises, a valuable stove plant: a new Lycaste, with pale yellow flowers from Messrs. Loddiges; and an Arpophyl, in the collection of Orchids from Mr. Warner's gardener. *Gard. Chron., May* 10, 1851.

The Week's Work.

THE ORCHID HOUSES.

By J. COLLIER, Gardener to SIR JEREMIAH COLMAN, Bart., Gatton Park, Reigate, Surrey.

Lycaste.—Lycaste Skinneri and its varieties, together with such species as L. leucantha and L. costata should, after passing out of flower, receive any necessary attention at the roots. Lycastes do not need repotting annually provided a substantial rooting medium is employed. The plants are starting to grow afresh and will soon develop new roots from the bases of the young shoots. At this stage of their development the plants should be either top-dressed or repotted. Healthy specimens that have become pot-bound should be afforded larger receptacles that will accommodate the roots for at least two years. Those that are in soil that has become sour should be taken out of their pots, the roots cleansed of all the old materials by washing, and be potted afresh. Plants that have sufficient rooting space and compost in good condition should not be repotted, but portions of the old material should be removed from the surface and new compost substituted. In repotting the pots should be filled to one-third their depth with clean crocks for drainage, with dried Oak leaves over the crocks, as it is of great importance that surplus water should drain away quickly at all stages of the growth of these Orchids. Press the soil firmly about the roots and arrange it to within half-an-inch of the rim of the pot. Water the soil sparingly for a time, but later, when the receptacles are well-filled with roots the latter will require a liberal supply of moisture; allow the compost to become fairly dry between each watering. When growth is completed only sufficient moisture will be needed to maintain the pseudo-bulbs in a plump, rigid condition. At that stage the plants should receive an increased amount of sunlight to ripen and consolidate their pseudo-bulbs. Scale insects are sometimes troublesome and should be kept in check by sponging the leaves on frequent occasions. A suitable compost for Lycastes consists of two parts rich, fibrous loam, removing all the smaller particles, and the remaining part a mixture of fibrous peat or Osmunda fibre, half-decayed Oak leaves and Sphagnum-moss, cut into short portions, the whole mixed with sufficient crushed crocks to render the compost porous.

THE KITCHEN GARDEN.

By F. STREETER, Gardener to LORD LECONFIELD, Petworth Park, Petworth, Sussex.

French Beans.—Select a warm south border, if available, for the earliest sowings of French Beans in the open. The ground should have been previously thoroughly manured and trenched for this crop. Draw a sufficient number of drills two inches deep, six inches wide and about two feet six inches to three feet apart; each drill will accommodate two rows of seeds. Cover the seeds carefully with fine soil, and rake the whole bed so as to leave a fine surface. Selected Canadian Wonder is an excellent variety for this sowing. When the crop is being forwarded in pots, as recommended in an earlier calendar, the plants must be given air on all possible occasions to prepare them for planting out later.

Spinach-Beet.—In very hot gardens it is often advisable to sow sufficient seeds of this vegetable to provide plenty of green material for the kitchen, especially where summer Spinach quickly runs to seed. The seeds should be sown in open ground, and where the crop will not be likely to interfere with next season's cropping arrangements.

Broccoli.—Sow main-crop Broccoli in plenty, selecting sufficient varieties to maintain a complete succession. In well-managed gardens there should be no break between the less hardy Cauliflowers and Broccoli the whole season round, provided the weather is favourable. Sow evenly and thinly and cover the seed-bed with old nets to protect the seedlings from the ravages of small birds.

Asparagus.—The permanent Asparagus beds are supplying a large crop. Cut the stalks carefully and destroy the very thin growths that are not usable. Keep the beds free from weeds and feed the roots occasionally with a concentrated manure.

Cabbage.—Spring Cabbages will be greatly benefited by a very light dressing of nitrate of soda applied when the weather is warm; on no account should the fertiliser be used during cold, wet periods. The heads are turning in satisfactorily and should be used when quite small and firm.

FRUITS UNDER GLASS.

By T. PATEMAN, Gardener to SIR CHARLES NALL-CAIN, Brocket Hall, Hertfordshire.

Cucumbers.—Plants that were raised early in the year will now be cropping freely, and to keep them in a healthy condition they should be given frequent top-dressings of rich compost; this will keep the roots near the surface and the top-dressing should be renewed so often as it is necessary to do so. Watering on alternate occasions with liquid manure will keep the plants in constant bearing for a considerable period, provided they are not overcropped. Pay strict attention to stopping and regulating the young shoots. When in full bearing, and during hot weather, the plants will require copious supplies of moisture at the roots. Close the house as early in the day as the aspect will allow, for Cucumbers revel in sun-heat and plenty of atmospheric moisture.

Frame Cucumbers.—If a frame has been stood on a hot-bed of fermenting materials for growing Cucumbers, the seeds may be sown forthwith. If a suitable house for the raising of the young plants is not available, I would advise germinating the seeds on a small hot-bed under a hand-light. In a heated house the receptacles containing the seeds may be stood in a box containing moist material, and placed over the hot-water pipes, covering the box with a sheet of glass until germination takes place, when it should be removed forthwith. Cucumbers germinate very quickly at this season of the year, therefore it will be advisable to have the fermenting material prepared in readiness to receive the young plants, and the soil prepared at the same time so that it may be warmed throughout before planting takes place. A suitable compost for Cucumbers consists chiefly of fibrous loam, to which short manure, lime-rubble, bone-meal and wood ash have been added. Place the soil in small mounds of sufficient size to set the plants, this being all that is required at this stage, as more soil may be added at frequent intervals. When air is admitted on bright, sunny days the frames should be closed as early as possible to conserve the solar heat, and on cold nights it will be necessary to cover the sashes with some protecting material.

THE FLOWER GARDEN.

By F. C. PUDDLE, Gardener to LORD ABERCONWAY, Bodnant, Taly-Cafn, North Wales.

Roses.—Roses are growing apace, and the present time is not too early to commence systematic spraying for combating insect pests and fungous diseases. It is well to bear in mind that the action of fungicides is preventive rather than curative, and if the plants are to be kept free from mildew and other diseases spraying should be commenced before they appear. It is a great advantage in the economy of labour to spray always with a combined insecticide and fungicide wash. A cheap and effective specific may be made by dissolving two ounces of sulphide of potassium in three gallons of water, to which should be added a quarter-of-a-pint of concentrated Quassia extract. In addition to its insecticidal properties, the soap which is contained in most proprietary brands of Quassia extract also acts as a fixing agent for the potassium sulphide. It should be remembered that sulphide of potassium will discolour paint, and Roses growing on buildings or in the vicinity of painted surfaces are better sprayed with one of the proprietary mildew specifics which does not contain this chemical.

Rhododendrons.—As Rhododendrons and Azaleas pass out of flower, the seed-pods should be removed as early as possible to enable the full energies of the plants to be concentrated on the production of strong growths, which will ensure abundant flower buds for next season's display. Growths which have been injured by spring frosts should also be removed, when the lower eyes will commence to develop and produce normal growths.

Vases and Tubs.—Where space can be afforded in a cool house, movable vases and tubs which are used for the embellishment of terraces and other parts of the flower garden should now be filled with their summer occupants, so that the latter may have time to become established before being placed out-of-doors. The choice of suitable plants depends largely on the position and environment. Ivy-leaved Pelargoniums and Hydrangeas are amongst the most suitable subjects for the more exposed situations. Fuchsias and Heliotropes are excellent for sheltered places, and the charming evergreen Eugenia apiculata makes a fine specimen plant for either position. The graceful Chinese shrub, Ceratostigma Willmottianum, with brilliant blue flowers is also well adapted for use as a vase plant.

East Lothian Stocks.—Plants of this fine strain of Stocks which were raised from seeds in January and grown under cool conditions may now be safely planted in their flowering positions. Place them nine inches apart if it is desired to cover the ground. If the soil is deficient in lime this should be added before planting, and a dusting of lime or soot around the stems of the plants will assist in warding off attacks of the Cabbage-root fly, which is very troublesome to Stocks in some districts

HARDY FRUIT GARDEN.

By W. AUTON, Gardener to VISCOUNT ELVEDEN, Pyrford Court, Woking, Surrey.

Early Vines.—The Grapes on vines that were started into growth during December are approaching the ripening stage, and where the vines are heavily cropped and any doubt exists as to the berries finishing well, it is not advisable to maintain a high temperature in the vinery at night, but allow it to fall to 60° rather than maintain a hot, dry atmosphere. Make every possible use of solar heat by closing the house so early in the afternoons as the aspect of the vinery will allow, in order that the temperature may rise to 85°. This amount of warmth, with plenty of atmospheric moisture, will favour the ripening of the berries considerably more than will artificial heat. When the weather is favourable a small amount of air may be admitted by the top ventilators some time during the evening, and the ventilators allowed to remain open throughout the night

The Fruit Store.—Apples remaining in store will need frequent inspection at this season for the removal of any specimens showing signs of decay, which may serve for immediate use. Most of the trays which have been in use for storage will now be empty, and advantage should be taken of wet days to cleanse them thoroughly and also the walls and woodwork of the fruit-room.

Apricots.—Although Apricot fruits may be left closer together on the tree than those of Peaches and Nectarines, some thinning of the crop is necessary. With the larger-fruiting varieties two or three fruits per square foot of surface is sufficient to leave, while with the smaller-fruiting varieties double that number may be retained if the trees are vigorous and healthy. Stop the leading shoots so soon as they have made sufficient growth and pinch to a few buds all those that are not wanted to furnish spaces on the wall. Examine the border for moisture, and if approaching dryness, water it thoroughly with clear water, deferring the application of stimulants until the fruits have stoned.

Disbudding and Stopping.—The health as well as the symmetry of a fruit tree depends to a considerable extent on judicious and timely disbudding and stopping, for nothing is so detrimental to general vitality as the overcrowding of shoots. Growth is now proceeding rapidly and frequent attention should be given to regulating the shoots of Apples, Cherries, Pears and Plums on wall and espalier trees. Those shoots necessary for the extension of the tree should be trained while supple; all unnecessary shoots should be removed, and by stopping the side shoots when they are a few inches long, the tree will be kept in a moderate state of growth favourable for the production of fruiting wood. It is a mistake, however, to carry out this work in one operation, as this would cause an unnecessary check, whereas by removing a few shoots at a time the sap is gradually diverted to other channels, and the welfare of the tree is enhanced. Neither should disbudding be deferred too long for if the wood has become hard the removal of it makes a wound which not only disfigures the tree but opens roads for the ingress of diseases. If these operations are done properly now, and to a sufficient degree, an extensive use of the knife can be dispensed with and thus a more natural way of cultivation is brought about.

PLANTS UNDER GLASS.

By JOHN COUTTS, Assistant Curator, Royal Botanic Gardens, Kew.

Chorizemas.—These flowering plants may be readily propagated now from cuttings made of half-ripened, twiggy shoots, inserted in pots of sandy peat. After watering the soil copiously and allowing the pots to drain for an hour or so, the latter should be stood under a bell-glass in a cool house. Their successful propagation should present no difficulty, as they root more readily than many hard-wooded plants. They are very beautiful, and as they flower over a long period, they are deserving of more extended cultivation for conservatory decoration. Plants that have finished flowering should be lightly pruned to keep them within bounds. Where it is desired to grow large specimens, very little pruning is required, all that is necessary being to tie the long, slender shoots to the supports. C. cordatum, of which there are several varieties, is the species most common in cultivation. Planted out in a well-drained bed or border in the conservatory Chorizemas make large plants; they are also well suited for clothing pillars or low walls. The compost should be made firm as for other hard-wooded plants; it should consist of sandy peat, with the addition of a little light loam. Chorizemas are also well suited for furnishing large, hanging baskets.

Lotus Bertholetii (syn. L. peliorhynchus).—This plant, with its grey foliage and scarlet, parrot's-bill-like flowers, is a very distinct and beautiful subject for the cool greenhouse, usually producing its flowers during May or early June. Being of a slender, spreading habit it is well suited for filling hanging baskets. Where good plants are required for next season, stock should be raised from cuttings some time during May or June. The cuttings should not be placed in a close, moist case, as they are apt to damp off. Excellent flowering specimens may be grown in five-inch or six-inch pots; the shoots should, in the case of pot plants, be kept upright by tying them to neat stakes. This exotic grows freely in any good potting compost, and only requires cool greenhouse treatment during all stages of its cultivation. Free exposure to light is essential for the production of flowers. During the winter, in the immediate neighbourhood of London. this plant suffers very much from fogs.

Canarina campanulata.—This Canarina, with its bell-shaped, orange-red flowers, which are generally produced during winter and early spring, should commend itself to lovers of choice plants. It is a greenhouse herbaceous perennial, and dies down during the summer; thus, as the foliage turns yellow, water should be withheld gradually. It will start into growth naturally during late summer or autumn. When repotting is necessary, large, well-drained pots should be used. Propagation is effected by means of cuttings, which root in a slightly heated case, but the best means of raising a stock of plants is by seeds, which may be sown now.

FOR NORTHERN GARDENERS.

By A. T. HARRISON, Gardener to the MARQUIS OF AILSA, Culzean Castle, Maybole, Ayrshire.

Peaches and Nectarines.—Trees that have set fruits freely need timely attention to thinning the crop as well as to the disbudding of superfluous shoots. In thinning the fruits it is best to remove all badly-placed specimens at the first operation, leaving sufficient to make a further selection before the final thinning is completed. By badly-placed fruits, I mean those which have set between two branches or close to the wires supporting the trees, and also those on the underside of the trellis; those in the last named position are not likely to colour satisfactorily. No hard and fast rule as to the number of fruits to retain can be laid down, as much depends on the health and vigour of the trees, but it is useless to expect first-rate specimens from very heavily-cropped trees; the old rule of one fruit to the square foot of surface may be followed. The thinning or disbudding of the young shoots also calls for some discrimination, and all those growing upwards or downwards on the front trellises, also those growing outwards on the back walls should be removed first, making a selection of the side-shoots to furnish the trees with young wood for next season's fruit bearing. This operation is not performed all at one time, but spread over, say, a fortnight, as the removal of too many growths at one time would cause a check to the trees, and result in the young fruits shrivelling and dropping. Keep a sharp watch for insect pests, such as green fly, thrips, etc., and fumigate the house so soon as they are detected.

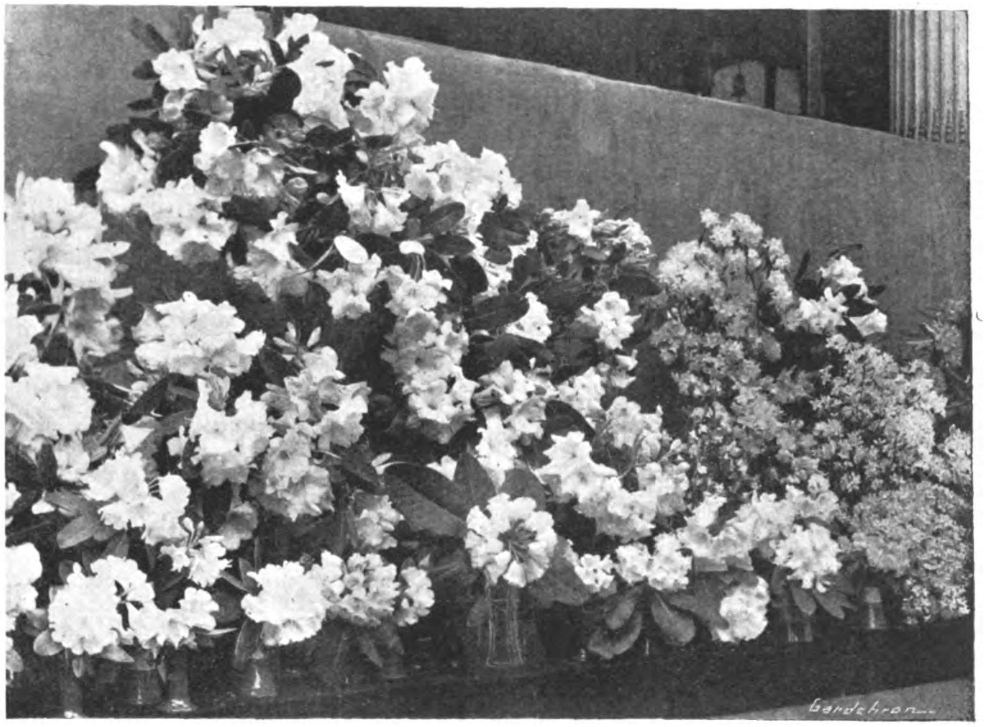

FIG. 169.—MR. LIONEL DE ROTHSCHILD'S EXHIBIT OF RHODODENDRONS AT THE RHODODENDRON SOCIETY'S SHOW, APRIL 27.

(see p. 330.)

Tomatos.—Where houses are provided solely for the growing of Tomatos, the seedlings will now be planted in borders, but where only a limited number is grown for home consumption, they may be grown in pots or boxes. Do not use soil in which Tomatos have been grown before but break some turfy loam roughly and mix with it a small quantity of wood ash. Pot firmly and leave plenty of space in the pot for future top-dressings which should be given so soon as the first truss of fruits is set and swelling. Pollenate the first flowers by means of a rabbit's tail to ensure the fruit setting; tapping the stakes to which the plants are attached, in the middle of the day, is sufficient to disperse the pollen of the later trusses of flowers, and is quite effective in producing a good set of fruits.

Cuttings of Winter-Flowering Plants.—The present is a good time to insert cuttings of winter-flowering Begonias of the Gloire de Lorraine types. Plants that were rested as previously advised are now sending up young growths in profusion, and if the cuttings are inserted in a three-inch pot in sand and leaf-mould they will root quickly in a propagating case, when they may be either potted separately or grown on three in a pot and shifted into receptacles of larger sizes as required. A number of the old plants should also be shaken out and repotted, as these will make handsome specimens if well-cared for. Never pot these Begonias too firmly: where peat is difficult to obtain a good substitute may be found in decayed Oak or Beech leaves. Cuttings of Coleus thyrsoideus should also be inserted now. This fine, blue-flowered plant is a useful comparison to the foregoing, for owing to its more erect growth it may be associated with the dwarfer-growing Begonias. Isoloma hirsutum is a useful, winter-flowering member of the Gesneraceae, its scarlet, tubular flowers giving a warm effect during the dull days of winter. Cuttings of this plant inserted now will make useful examples in four-inch pots for flowering next winter. Corms of Gesnera zebrina that were potted some time since are growing freely, and the flowers of these plants will also furnish bright colour in the winter.

ORCHID NOTES AND GLEANINGS.

CYPRIPEDIUM GODEFROYAE.

Cypripediums which produce their flowers during the summer months are valuable, as they maintain the interest in this large family of plants while the winter-flowering kinds are making their growths.

Since its introduction in 1883, there has been considerable discussion as to whether Cypripedium Godefroyae is a hybrid, or a species, but in any case it is a most desirable and beautiful Cypripedium and worthy of cultivation. It apparently links up the whole group of coriaceous-leaved Cypripediums, namely, C. bellatulum, C. concolor and C. niveum. The three species mentioned are generally recognised as being distinct; but C. Godefroyae shows considerable variableness of form, colour and size, both in its flowers and leaves. The hybrids which have been raised between the species named bear in certain cases some resemblance to many of the imported forms of C. Godefroyae, but not sufficient to definitely prove it to be of hybrid origin. So variable are the imported forms that in many instances it is hard to realise the plants all belong to the same kind; some flowers have a pure white ground colour, others vary from cream colour to the palest yellow, whilst the spotting and markings of the different forms show the same diversity in depth of colour.

This Cypripedium has never been imported in large quantities, but many forms have been exhibited and received the highest awards of the R.H.S. The type was figured in *The Gardeners' Chronicle* so far back as vol. XXIII, 1885, p. 49.

Upwards of thirty different hybrids have been raised and recorded with C. Godefroyae as one parent, and the progeny comprises some of the most distinct and beautiful members of this useful and popular family.

Some growers experience a difficulty in growing C. Godefroyae well, but once it is induced to grow it is easily kept in good health. The thick, leathery foliage is capable of withstanding more light than the leaves of the winter-flowering section, hence the plants should be raised well up to the light, in a position where they may receive an abundance of atmospheric moisture, but well out of the way of the syringe, as it detests overhead watering. Whilst making their growths the plants delight in plenty of heat and moisture, and they should never be allowed to shrivel for the want of water at the roots, even when at rest. They are best grown in ordinary pots in a compost of equal parts of peat and loam fibre, to which some limestone chippings or broken crocks and a small quantity of Sphagnum moss may be added.

The hybrids from C. Godefroyae are much freer in growth than the parent and deserve the attention of all Cypripedium lovers. *J. T. B.*

INDOOR PLANTS.

SOLLYA DRUMMONDII.

This Australian evergreen, which is sometimes known as S. parviflora, is an ideal plant for clothing a pillar or the rafters in a cool house or conservatory. The small, clear blue flowers are usually solitary, but occasionally two or three develop in a cyme, on hair-like pedicels. The leaves are lanceolate, very shortly petiolate and thinner than in the better-known S. heterophylla.

This Sollya thrives in a well-drained peaty soil, presents no difficulty to the cultivator, and its propagation is effected by cuttings.

A good blue is ever a welcome colour, and from late April to quite late in the summer this plant will be an attraction in the cool greenhouse, it is much more satisfactory when planted out than when grown in a pot. S. Drummondii was introduced from Australia so long ago as 1838. *Ralph E. Arnold.*

WINTER-FLOWERING BEGONIAS.

Varieties of winter-flowering Begonias of the type represented by Optima, Mrs. Heal, Exquisite and Fascination should be propagated as cuttings are available. The cuttings should be obtained when the shoots are three inches to four inches in length and inserted singly in thumb pots, using a light, sandy compost. After watering the cuttings, the pots containing them should be plunged in a warm propagating case, where roots will develop quickly. When rooted, remove the plants from the case and stand them on the stage near the roof-glass. The stronger-growing varieties succeed in a compost such as is used for ordinary tuberous-rooted Begonias, but for some of the weaker-growing varieties it is advisable to use a somewhat lighter compost. The stronger-growers will require six-inch pots for the flowering size, while four-inch size is large enough for such varieties as Optima, Ideal and Elatior; in any case, guard against over-potting. The plants should not be grown in a high temperature as this would result in weak growth, which will be reflected in a short flowering season; grown cooler, strong, sturdy plants should remain in flower for at least two months. These Begonias succeed in a temperature of about 55°, closing the house with plenty of sun-heat, for little fire-heat is necessary, except at night and during dull weather. Water should be afforded the roots carefully at all times, and when the pots are full of roots, the latter should be fed with diluted liquid manure and clear soot water. The plants are subject to attacks of Begonia mite, which is best prevented by the use of the sulphur vaporiser.

The following are all fine double varieties:—Sunrise, Flambeau, Clibran's Pink, Scarlet Beauty, Miss Clibran, Altrincham Pink, Britannia and Eclipse. In the immediate neighbourhood of London it is useless trying to grow these Begonias, as one night's fog strips them of every flower and bud. *J. Coutts.*

HYDRANGEAS.

These shrubby plants are valuable for the decoration of the conservatory and greenhouse; by growing successional batches of plants a display may be maintained over a long period. Young plants growing in cold frames may be introduced to a warm greenhouse in numbers according to the requirements of the establishment.

Plants that have been wintered in small pots require to be potted on when they start into growth; those already started and growing freely should be given copious supplies of water at the roots. Large specimens should now receive attention. Cut out all dead and weak shoots; and re-stake and tie the shoots retained. If any of these plants require shifting into fresh pots or tubs it is best done when growth commences. Afford water carefully at the roots until the latter are established in the fresh compost.

The great improvement in varieties in recent years has been demonstrated at important shows, where exhibits of Hydrangeas have won very high awards, and they are now cultivated extensively by market growers, there being a large demand for these plants as pot specimens for indoor decorations. The more notable varieties include Triumph, deep rose-pink; Etincelant, bright carmine; Krimhild, salmon-rose; Marechal Foch, rose-pink; F. Matthes, salmon-rose; Madame Mouillere, white; La Marne, mauve-blue; Niedersachsen, mauve-pink; Parsifal, deep red, and Rhinegold, pink. *J. C.*

HARDY FERNS FOR SHADY PLACES.

No other plants are so well adapted for planting in shady borders or corners of the garden where flowering plants fail than hardy British Ferns. They are most attractive when growing on a gentle slope or on mounds in a Fern rockery. Sufficient space should be allowed for each plant to develop and display its graceful fronds to advantage.

The soil for Ferns should be prepared by deep digging and be of a suitable nature for the roots; it should consist of well-rotted turf of a loamy texture, and peat or decayed leaf-mould in equal parts, mixed with a liberal quantity of coarse sand. An abundance of water is required by the plants in their growing season, but the soil should be open in texture to prevent stagnant conditions at the roots. A top-dressing of decayed leaves and chopped peat applied annually is very beneficial to Ferns.

The taller-growing Ferns include Lastrea Filix-mas, L. F-m. Barnesii, L. F-m. fluctuosa, L. F-m. gigantea, Moly, and L. F-m. polydactyla; these are all effective, have leathery foliage, remain attractive a long time, and will grow under almost any conditions. Lastrea pseudo-mas angustata cristata, L. p-m. cristata and L. p-m. pendens are also tall plants, the last growing quite five feet to six feet high. Polystichums, which Bentham and Hooker class under Aspidium, should be included in all collections, also Scolopendriums, which are especially attractive when planted on the shady side of a stream or lake; S. vulgare coronatum, the several forms of S. v. crispum, S.v. nobile and S. v. Golden Queen are all most beautiful plants. The Polypodiums in their many forms retain their foliage well into the winter, and should be planted in peaty soil. The dark green colour of the fronds of Blechnum spicant and its varieties is pleasing, and these Ferns make a good fringe to the Fern border. Asplenium (Athyrium) Filix-foemina, the Lady Fern, is a robust growing plant but the pale green, slender fronds are extremely graceful. For the bog or very moist positions choose Adiantum pedatum and its American variety Klondyke; Asplenium thelypteroides, Lastrea Thelypteris, and Onoclea sensibilis. Osmunda regalis, the Royal Fern, and its varieties are charming when planted on the shady side of a lake or stream. *W. Logan.*

NEW HYBRID ORCHIDS.

(*Continued from March 27, p. 230*).

Name.	Parentage.	Exhibitor.
Brasso-Cattleya Grand Monarque ...	C. Schroderae × B.-C. Cliftonii	F. J. Hanbury, Esq.
Brasso-Cattleya Mary J. S. Hanbury...	Parentage unrecorded	F. J. Hanbury, Esq.
Cymbidium Jewel	tigrinum × Pauwelsii	Sanders.
Cymbidium Magali Sander	J. Davis var. Cooperi × I'Ansonii	Sanders.
Miltonia Nadia	Charlesworth × Princess Margaret	Charlesworth & Co.
Miltonioda Nada	Miltonioda Lilian × M. Charlesworthii	Charlesworth & Co.
Odontioda Amboyna	Oda. Charlesworthii × Oda. Royal Gem	Charlesworth & Co.
Odontioda Amphion	Cochlioda Noezliana × Oda. Madeline	Charlesworth & Co.
Odontioda Ardenbrewii	Odm. ardentissimum × Oda. Brewii	J. and A. McBean.
Odontioda Galatea	Cochlioda Noezliana × Odm. Aglaon majesticum... ...	Charlesworth & Co.
Odontioda Madge	Oda. Charlesworthii × Odm. Amethyst	J. and A. McBean.
Odontioda Minnie	Oda. Brewii × Oda. Bradshawiae	J. and A. MaBean.
Odontioda Nerissa	Oda. Brewii × Odm. Lawrenceanum, Cobb's variety ...	Charlesworth & Co.
Odontioda Olenus	Oda. Cora × Oda. Alcantara	Charlesworth & Co.
Odontioda Rosaleen	Oda. Coronation × (?)	R. Gerrish, Esq.
Odontioda Sophie	Oda. Joan × Oda. Vuylstekeae	Charlesworth & Co.
Odontoglossum Cordelia	Penelope × St. George	Charlesworth & Co.
Odontoglossum Lawrentense	Lawrenceanum × harvengtense	Charlesworth & Co.
Odontoglossum Mirum var. Lemonora	crispum xanthotes × Wilckeanum aureum	Charlesworth & Co.
Odontoglossum Nubia	St. James × eximium	Charlesworth & Co.
Odontoglossum Thrush	Pescatorei × Gorizia	J. and A. McBean.
Odontonia Cassiope	M. Charlesworthii × Odm. Harryanum	Charlesworth & Co.
Odontonia Priapus	Odontonia Irene × Odm. Gorizia	Charlesworth & Co.
Vuylstekeara Leda	V. Brewii × Odm. Radiant	Charlesworth & Co.

NOTES FROM GLASNEVIN.

Trees and Shrubs.

Since the beginning of April there has been a notable increase in the number of plants blooming out-of-doors. Rhododendrons, which now figure so frequently in the weekly gardening papers, are and have been flowering freely. A few, however, suffered from frost, and the young growths of some of the newer species were killed: this is true also of some species of Pieris, notably P. japonica.

It is unnecessary to enumerate all the Rhododendrons that are now flowering, since many of them are mentioned in these pages from week to week. One species, however, gives promise of doing well here, that is R. adenogynum (Fig. 170), a sturdy grower of close habit, the leaves thickly clothed with brown felt below. The flowers, produced in handsome, compact trusses, are deep pink in the bud stage, but when fully open are very pale pink or almost white. This species flowered in March, but the time varies according to position. R. calostrotum is a tiny bush now well-furnished with flat, plum-coloured flowers, produced singly on longish stalks, a characteristic apparently of the "Saluenense" series. R. callimorphum is another beautiful, dwarf shrub, producing loose trusses of bell-shaped flowers of charming rose colour. R. Davidsonianum would be difficult to beat at the present moment for sheer profusion of flowers, scarcely a leaf being visible. In the same series, but with paler flowers, is R. siderophyllum and various specimens of R. Augustinii now opening, shading from pale mauve to almost blue.

The Prunuses have rarely flowered more profusely than during the present spring. The many beautiful forms of P. serrulata have been laden with blossom, some of the latter varieties only just now opening. Among the species less commonly seen P. mira was remarkable. This is a vigorous tree belonging to the Amygdalus section of the genus, and was first described by Koehne in *Plantae Wilsonianae*, vol. 1, p. 272, where also it is stated to be "the first Peach known with a smooth stone." The flowers are of medium size resembling those of some of the cultivated Peaches, pale pink, and freely produced on wood of the previous year as well as on short spurs of the older wood. P. mira is now out of flower, blooming somewhat earlier than the common Almond, and will, in time, become popular. In contrast to the foregoing tree-like species the Russian Almond, Prunus nana, is admirably suited for sunny positions about the rock garden where its dainty pink flowers are a source of attraction at this season. There is a white variety equally floriferous but less conspicuous. Prunus Nakaii a native of Korea, is also adapted for the rock garden, and there requires a sheltered position. It has somewhat the habit of P. nana with smaller, pink flowers, but is less hardy and vigorous. Although in the Glasnevin collection for some years, it has made slow growth and is not yet altogether reliable.

Fothergilla major is striking, growing among Rhododendrons, Ledums and other peat-loving plants. It belongs to the Hamamelis family and is remarkable at present by reason of its numerous clusters of white stamens; at some distance they resemble the corymbs of Ledum palustre, but the leaves are only just developing. In autumn, the latter turn a beautiful golden yellow. In the same bed, F. Gardenii and F. monticola grow and likewise colour up in autumn, the leaves assuming orange, yellow and red tints.

The Rock Garden.

Among the many plants now flowering and coming into flower, it is difficult to select those most worthy of notice. The earliest Primulas of the marginata, ciliata and pubescens types are nearly over, but hosts of others are fast coming on. P. latifolia is interesting and succeeds admirably wedged between two blocks of calpe limestone. The leaves are broad with wavy margins, the flowers dark purple, small, but ten to twelve together at the end of a scape, well above the leaves. This is generally considered one of the forms of the variable P. viscosa and has the characteristic clammy leaves

Æthionema coridifolium is an excellent plant for a sunny, dry slope. It forms a small, twiggy bush with glaucous leaves and heads of rosy pink flowers. The plant sold as A. Warley Variety appears to be very near the species.

Anemone sylvestris, the so-called Snowdrop Windflower, is beautiful when growing on a slope in some quantity. The white flowers borne on long stalks are particularly graceful. Numerous forms are offered, including "grandiflora," but as a matter of fact, a few "heads" of "seed" sown when ripe will yield plants giving flowers of various sizes. Anemone obtusiloba patula is also in flower now and will continue in bloom for most of the summer. Ordinary soil and a half-shady position seems to suit this form; the pale blue flowers are produced on stalks which spread from the centre of the leaf rosette. There is also a white variety which is not so attractive. Anemone potentilloides, like the last-named, was introduced by Lady Wheeler Cuffe from the Shan States. It is smaller in all its parts and is quite glabrous, the small leaves are more deeply cut and the flowers a deeper blue. It has not proved so successful in the open, due more to the ravages of slugs than to being tender. This species was at one time considered a form of A. rupestris, and through the latter is connected with A. obtusiloba; it is now, however, regarded as a distinct species.

Anemone rupicola is quite different with dark green, much divided leaves and white flowers held well above them. This species flourishes best in rather light, well-drained soil and spreads rapidly by underground stolons, flowering practically all spring and summer.

Very beautiful at present is Meconopsis simplicifolia, with its dark blue, nodding flowers, solitary, on tall scapes, some eighteen inches high. M. integrifolia and its forms are also in flower but are less vigorous than usual, due probably to the excessively wet winter with intermittent severe frosts.

Indoor Plants.

Acradenia Frankliniae, a Tasmanian evergreen of the Rue family, is little known outside botanical collections. It forms a neat, compact bush with trifoliate leaves, the leaflets lanceolate, rather coarsely toothed from the middle to the apex, dark green above, paler below, well-furnished with the glandular dots characteristic of the family. The pure white flowers, each about half-an-inch in diameter, are produced in corymbs of ten to twelve at the ends of short twigs. Cool greenhouse treatment during winter with a change to outdoor conditions from mid-June to September suits this interesting Antipodean shrub admirably. Macleania insignis is a little known member of the Vacciniaceae, forming a somewhat leggy shrub. The habit, however, serves to display the pendulous, tubular, orange-red flowers, which are produced over a considerable period and have no little beauty. It is figured in the *Bot. Mag.*, t. 7694.

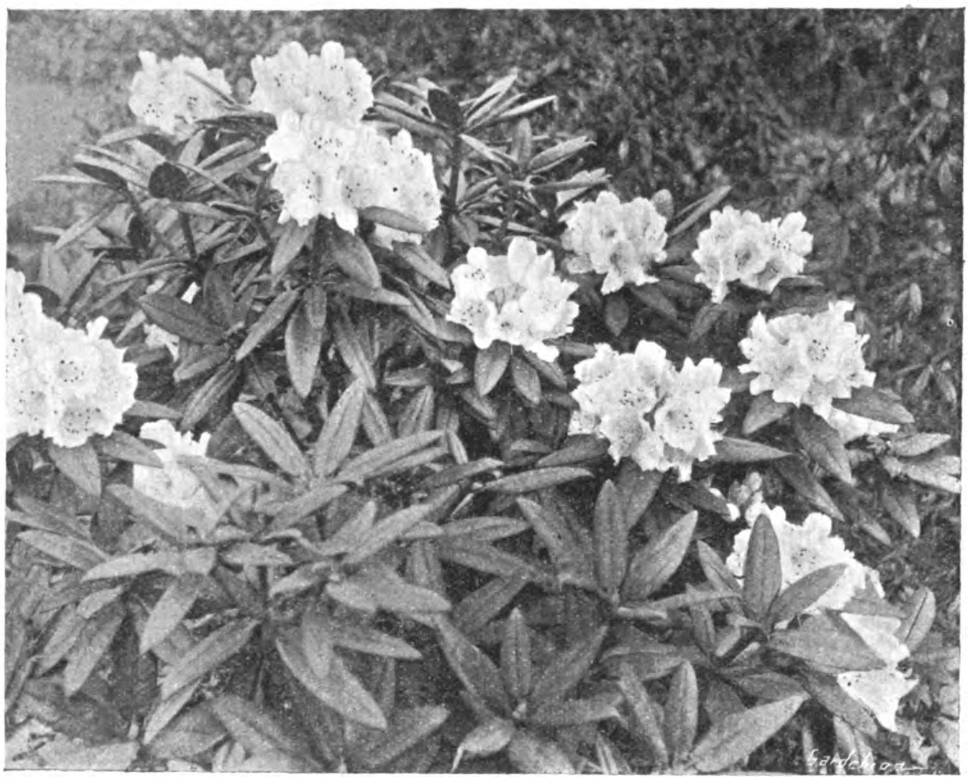

FIG. 170.—RHODODENDRON ADENOGYNUM AT GLASNEVIN

Orthrosanthus chimboracensis, a South American member of the Iridaceae, forms tufts of long, grass-like leaves, from among which arise panicles of bright blue flowers; these, individually, are rather fugitive, but continue to appear in succession daily for some time. Pot cultivation in a cool greenhouse is suitable, but possibly planting out under similar conditions would result in larger specimens. It may be worth while attempting outdoor cultivation in a sheltered position.

Pimelia ferruginea, a native of Australia, and belonging to the Daphne family, forms a beautiful shrub for the greenhouse. The slender twigs are closely furnished with small leaves and terminated by a corymb of pink flowers reminiscent of some of the Daphnes. It has probably no claims to be hardy, but another species, P. prostrata, has lived through the last two winters in a sheltered border adjoining one of the warmer plant houses. The twigs scarcely rise from the soil and are at present producing corymbs of white flowers. *J. W. Besant, Glasnevin*

THE GENUS MECONOPSIS.

(*Continued from p.* 308).

PRIMULINAE.

These are biennials with several one-flowered scapes in a raceme-like cyme, sometimes (as in M. lancifolia), agglutinated into a central stem. Leaves entire or nearly so. Flowers blue or violet. Several of them are charming plants and may be said to hover on the borders of cultivation, though becoming slowly more and more rare except when a fresh relay of seed temporarily checks their decline. But as they have not yet made their mark in English gardens and are nowhere a feature, I need not write much about them. In nature they grow widely scattered in high stony pastures, and on the alpine moorland, or on barren screes, and, being for the most part small, are easily overlooked, or even buried amongst bigger plants.

The known species are: M. primulina, M. Forrestii, M. psilonomma, M. lepida, M. eximia, M. Henrici, M. lancifolia and M. argemonantha, and they are all Chinese, with the exception of the last named, which comes from the eastern Himalaya. It is an imperfectly known species. The Chinese species are found along the Sino-Tibetan ranges from Kansu in the north to Yunnan in the south, none of them having a very extensive distribution.

I have seen only M. lancifolia and M. Henrici growing wild. The former is interesting because it grows in calcareous or igneous soils indiscriminately, just as M. Prattii does—though M. Prattii much prefers to be excused a diet of lime.

M. Henrici looks as though it ought to belong to the sub-section 'Grandes,' but the hairs are simple, not barbellate as in M. grandis and its allies. It was in cultivation some years ago, but was lost. At the moment of writing there are some living plants on the rock garden at Kew, raised from my seeds (K.W. 4,421), though whether they will survive the winter to flower next year is another matter. It is a beautiful species, twelve of fifteen inches high, with great, shimmering, violet balloons of flowers. The species all seem to have this in common—they come from high altitudes, round about 15,000 feet (and so are bound to prove 'tender' with us), and the vitality of their seed is of a low grade.

BELLAE.

There are hardly any constant characters by which this group can be separated from the last, but the aggregate, nevertheless, serves its purpose. Plants with nodding flowers, borne singly on a sheaf of pedicels, longer or shorter. The species are M. impedita, M. bella, M. concinna, M. venusta and M. Delavayi—all Chinese except M. bella (a rare Sikkim-Nepal plant) and a variety of M. impedita called Morsheadii, which is Tibetan. It is, therefore, evident that the aggregate 'Primulina-Bellae' is essentially Yunnanese, though it is not unlikely that allied species will presently turn up in the eastern Himalaya, as M. impedita var. Morsheadii has already done.

One naturally wonders whether these may not be, after all, limestone plants, since North-west Yunnan is so largely built up of limestone; or at least whether a calcareous soil is not innocuous. But M. Henrici, M. impedita, M. bella, M. argemonantha are definitely recorded from non-calcareous soils; M. lancifolia appears to be indifferent; and few of the remaining species are found under conditions which would warrant the assumption that lime is a necessity. It seems probable enough that in this group, at any rate, a little lime does no harm.

The 'Bellae,' like the 'Primulinae' hover in and out of cultivation, but none of them have established themselves. M. bella itself—which must be a lovely thing—appears to be quite hopeless, though it *has* been flowered in this country, and is figured in *Bot. Mag.*, tab. 8130. The only species I have seen growing wild are M. impedita (and its variety Morsheadii), and possibly M. Dalavayi, in fruit; and these are plants of the high screes.

Sir David Prain includes M. Baileyi (not to be confused with M. simplicifolia, var. Baileyi) here; but that species, I am satisfied, is identical with my 5,847, which is one of the Polychaetia section, and has nothing to do with the Primulinae-Bellae set.

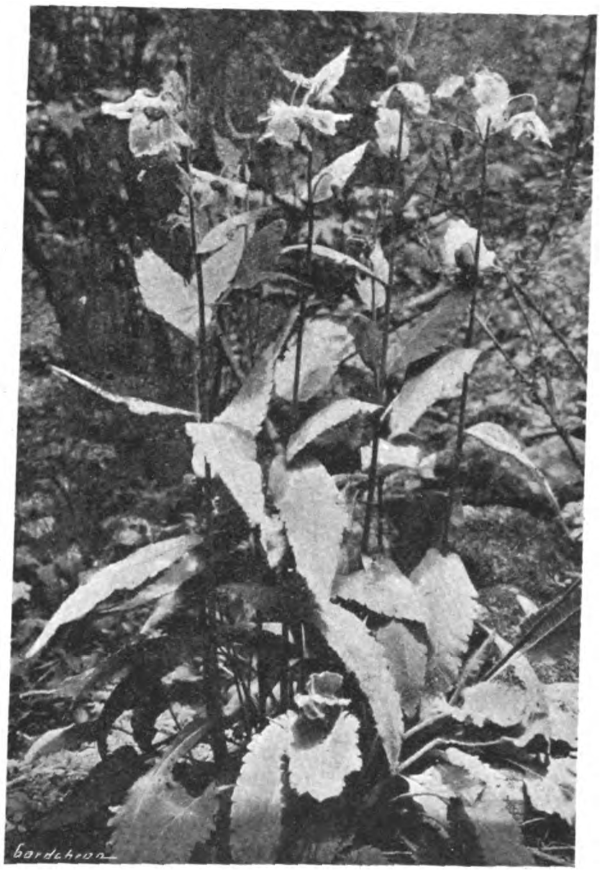

FIG. 171.—MECONOPSIS BAILEYI.

M. Baileyi (Fig. 171) was incompletely described by Sir David Prain from a fragment collected by Major Bailey during his journey up the Tsangpo in 1913. The material was very slight—one or two flowers without foliage, fruit, or stem, and no hint as to habit, and it is not surprising that Sir David Prain was led astray, since there was absolutely no clue to its affinity other than the blue flowers and four petals. I have examined the material and it is just possible, but only just, to make out a few barbellate hairs on the young ovary. I have noticed the same thing with my own specimens. Either the barbs do not become conspicuous till later, or there are two kinds of hairs, simple (usually) on capsule and stem, compound on the leaves.

In the field, and usually with ample fresh herbarium material, the distinction between simple and barbellate hairs is easily observed with a good pocket lens; with fragmentary herbarium material, or with old specimens, however, it is quite another matter. There may be no hairs to observe, or the barbs may have been worn off, or be not yet developed. Much remains to be done as regards the development of these barbed hairs; in the meantime it will be sufficient to observe that there are other species of Meconopsis—M. pseudointegrifolia for instance—in which it is often very difficult to make out the barbs, at all events in young specimens, and on certain parts of the plant. They are not nearly so prominent on M. pseudointegrifolia as on M. integrifolia.

To return to M. Baileyi. The note accompanying Bailey's specimen states that it was collected in flower on July 10, 1913, at Lunang—where our base camp was situated in 1924 (lat. 29° 45′ N., long. 94° 45′ E.). Subsequently Bailey told me that he believed M. Baileyi was collected on the southern face of the Himalaya two or three months later. It is, however, most unlikely that he would have found a Meconopsis in flower there as late as October, and we know that he did collect seed of M. simplicifolia var. Baileyi there about that time; so that it is probable that Bailey confused the two plants, the former of which has never been in cultivation. Moreover, my 5,784 is in full bloom at Lunang in July, and a keen observer like Bailey could not have failed to see it, and seeing it would certainly have collected it. Nor is there any other blue Poppy anywhere near with which it might be confused. There can be no reasonable doubt, therefore, that Bailey's ticket and specimen of M. Baileyi conform, and no doubt either that K.W. 5,784 is M. Baileyi, which must, therefore, be removed from the section Eumeconopsis to the section Polychaetia.

POLYCHAETIA.

Plants more or less covered, at least when mature, with barbellate hairs; or perhaps, in parts, with simple hairs also. The plants in this section are large, and amongst the finest in the genus. There are biennials and perennials. Flowers blue, purple, yellow, or red. Sir David Prain groups them into four aggregates, namely, 'Grandes,' 'Torquatae,' 'Robustae' and 'Chelidonifolia'; to these I would add another group, 'Superbae'; while from the 'Grandes' I would split off a yellow flowered group to be known as 'Integrifoliae'; raising the number of Polychaetia groups to six.

The yellow-flowered Poppies have given rise to a good deal of confusion, though once the facts are grasped the position is quite simple. The history of the 'Integrifoliae' may be thus stated—and for many of the facts I am indebted to Sir David Prain himself.

Meconopsis integrifolia.—This was the original species discovered in North-east Tibet by the Russians, and named Cathcartia integrifolia by Maximowicz; Franchet renamed it Meconopsis integrifolia. There is no style, but there are four to six vertically radiating stigmatic rays. The species is widely distributed in Western China and Eastern Tibet, occurring in meadows and on open moorland; but we did not meet with it in the Tsangpo valley.

The second yellow-flowered plant to be discovered in Western China, this time by the French missionaries, closely resembled M. integrifolia, but had a very short style and a flattened stigma.

However, M. Franchet, supposing it to be identical with Maximowicz's plant, called it also Meconopsis integrifolia, having in the meantime changed the name of Maximowicz's plant from Cathcartia to Meconopsis. (It is not necessary to enter upon a long discussion concerning the separation of these two genera.)

The third species discovered in North-east Tibet, again by the Russians, and raised from seed sent to this country by the St. Petersburg gardens (as they were then) was also called M. integrifolia. Meanwhile people began to compare the three gatherings, and murmurs arose. *F. Kingdon Ward.*

(*To be continued*).

ALPINE GARDEN.

CYANANTHUS LOBATUS.

I **FEAR** the experience of Mr. A. T. Johnson with this lovely alpine (see p. 284), that plants frequently die off while others survive and prosper, is only too frequent. As Mr. Johnson states, it appears to succeed well in loam that is naturally moist, and I consider that absence of moisture during the growing season is responsible for most of the losses. Mr. Johnson recommends growing Cyananthus lobatus in full sun, but the best plants I have ever seen were growing in a north-east aspect on the flat terrace of a rock garden. It was not naturally a moist position, but the cooler exposure helped to compensate for this and copious supplies of water were given the plants during the growing season. As a precaution, the owner, a very keen amateur, struck a few cuttings annually, but the old plant lived for many years.

SAXIFRAGA BURNATII.

S. **BURNATII** is a very beautiful hybrid between S. Aizoon and S. cochlearis, and combines the best features of each of its parents. The rosettes are rounded and have much more substance in the leaf than S. cochlearis, yet they possess the charming blue-grey colouring of that species, and have also a lovely silvery margin, which they derive from S. Aizoon. The leaves curl outward, as in S. cochlearis.

The plant flowers freely and gives numerous six-inch to nine-inch spikes with many flowers which have the exquisite purity of those of S. cochlearis, with a touch of the greater solidity of those of S. Aizoon. No difficulty is experienced in growing the plant under conditions similar to those which suit the great majority of Silver Saxifrages. Exposure to sun, free soil, containing plenty of grit and some lime are the principal needs of this charming hybrid. *S. Arnott.*

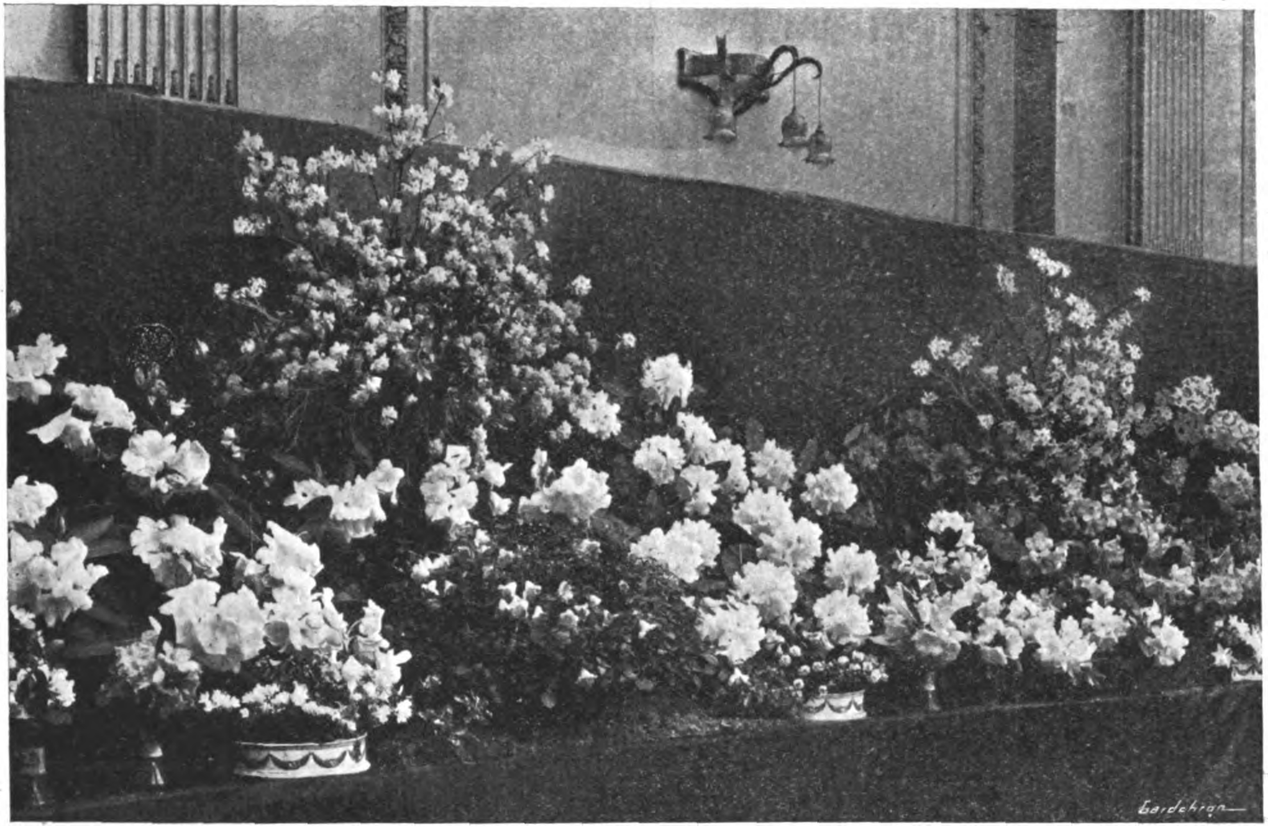

FIG. 172.—FIRST PRIZE EXHIBIT OF RHODODENDRONS SHOWN BY LADY ABERCONWAY AND THE HON. H. D. McLAREN AT THE RHODODENDRON SOCIETY'S SHOW, APRIL 27.

(see p. 330).

FLOWER GARDEN.

POLYANTHUSES FOR SPRING BEDDING.

FEW plants which are employed for spring bedding are more effective than the Polyanthuses. They are very free-flowering and give a prolonged display during the early spring months. They are also especially valued on account of the pleasant scent which many of the flowers possess.

To obtain striking effects, Tulips of suitable colours should be planted amongst them. For instance, a most pleasing display may be made by planting Tulip Prince of Austria among brilliantly-coloured Polyanthuses. The colour of this Tulip is orange, and it is one of the finest bedding varieties in cultivation. Sutton's Brilliant Mixture of Polyanthuses includes many shades of bronze and orange, and if raised from seeds sown in slight heat early in March, fine plants will result for planting in October to provide a floral display in the following spring.

In certain gardens and districts it is necessary to raise the plants annually from seeds, but in the majority of places the better method is to divide the plants after they have flowered and plant the divisions in partial shade. In such a position they should make strong specimens for planting in October, when the spring bedding scheme is carried out.

When propagation by division is followed, any undesirable colour or shade should be marked for elimination when the plants are in flower, or on the contrary, plants producing flowers of a particularly pleasing shade may be labelled or otherwise noted.

Plant the separate portions about eight inches apart in rows one foot apart. During the summer the Dutch hoe should be used frequently among the plants, and if the weather remains dry, a thorough soaking of water should be given as necessary. It, of course, is desirable to obtain a really good strain of seeds in the first instance or the results may be disappointing.

Among the light shades, the Munstead strain of Polyanthuses is perhaps the best. In it are included white, cream and many beautiful shades of yellow. The flowers of this strain are very fine and associate well with blue Hyacinths. Another charming combination is that of the Munstead strain with Tulip Couleur Cardinale, which is a very rich shade of scarlet and a bedding sort of ideal habit. *Charles Hodgson, Acton Place Gardens, Acton, Sudbury, Suffolk.*

BEDDING PLANTS.

ALTHOUGH it is not quite time to plant tender subjects, many of the hardier plants may now be safely transferred to their summer quarters and thus greatly reduce the rush of work which usually accompanies the bedding-out season.

All plants should, however, be thoroughly hardened off, either by removing the sashes entirely from the cold frames in which they are growing, or by standing the pots or boxes containing them in the open for a week or so to ensure that no check will follow their removal to the open borders or beds.

Antirrhinums, Lobelia cardinalis, Pentstemons, Salvia patens and others, are capable of withstanding the cold much better than many imagine, and where these are employed in the scheme of the flower garden, if planted now, the remainder of the work may be accomplished with greater dispatch when the time for doing so arrives, and provided the plans for the season's display have been well thought out beforehand, no confusion need occur. *A. T. Harrison, Culzean Castle Gardens.*

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Editors and Publisher.—*Our correspondents would obviate delay in obtaining answers to their communications, and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all letters relating to financial matters and to advertisements should be addressed to the* PUBLISHER; *and that all communications intended for publication or referring to the literary department, and all plants to be named should be directed to the* EDITORS. *The two departments, Publishing and Editorial, are distinct, and much unnecessary delay and confusion arise when letters are misdirected.*

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CLASSICAL AND LEGENDARY GARDENS.

VI.—THE ATTRACTIONS OF SUKHÂVATÎ.

IN their Description of the Land of Bliss, for such is the meaning of the title Sukhâvatî-Vyûha, the followers of Buddha allowed imagination to run riot. Their western Paradise contains marvels which hardly exist elsewhere. Unlike the Paradise of Mahomet, be it observed, it can boast no houris, and everything sensual is wanting, however sensuous may be the delights which there await the faithful. In a mood which some will regard as too complaisant, Max Müller suggests that "However childish, there is nothing indelicate or impure in the description of the Houris," though "it shows a less spiritual conception of the life to come than a philosopher would sanction." Like modern spiritualism, it reveals a sad lack of inspiration. It can think of the unseen only in terms of the palpable and material. The position is surely much better set forth in the words: "They neither marry nor are given in marriage, but are as the angels in heaven." The Persian Paradise, with its protecting walls and beautiful inhabitants, the Garden of Eden with its tree of life, the Gardens of the Hesperides and Alcinous, cannot vie with Sukhâvatî. It stands practically unrivalled among places of delight, be they real, legendary or purely imaginary. The fabricators of this wonderful land had, it is true, certain precedents upon which to draw. Their Brahman predecessors had described Nandana, and as Indra was the first of the Gods, Nandana was known as Indra's Paradise. To Vishnu was ascribed another place of delights, while the garden of Valuna, the god of the sky, was located in the west, and variously named Ritumat, Mukhyà, the chief, Nimlokani, the city of sunset, or Sukha, the happy. This Sukha seems to be the prototype of the Buddhistic Land of Bliss or Sukhâvatî, unless we find it in the Garden of Lumbini, to be studied later.

Western readers have been familiar with this amazing Paradise ever since the publication of Burnouf's *Introduction to the History of Buddhism*. It is to Professor Max Müller, however, that we owe the full knowledge of the subject which we at present possess. On making enquiries about the existence of Buddhist books in China and Japan, he discovered that from the beginning of the Christian Era the Chinese had been obtaining and translating Sanskrit manuscripts. In the seventh century of our era Buddhism passed by way of Corea into Japan, and here, as well as in China, and Tibet, certain books relating to Buddhism enjoyed great popularity. Among these was the greater and the lesser *Sukhâvatî-Vyûha*. Copies of these were obtained and printed in England, both in Sanskrit and in English. These are now available for the use of the student, but are, naturally, very little known among general readers. Let us endeavour to ascertain what this Land of Bliss, Celestial Paradise, Western Abode of Delights, or legendary, semi-mythological garden was like.

Sakhâvatî states that Vyûha was a vast plain, free from mountains, with a golden-coloured soil. This absence of mountains, here regarded as a high recommendation, would appear to the modern western with his passion for Alpine splendours, a great defect. But it is characteristic of the age. The love of mountains is a recent development. Formerly they were the dread abodes of all forms of evil—they favoured the storm, the snow, the avalanche; they harboured wild beasts, spirits of evil, men of demonic power ever seeking to work mischief—and a place less to be desired than a Paradise among the Alps could hardly be conceived. Sukhâvatî lay to the west in the region of the setting sun, and was well-watered. The rivers were possessed of every virtue, the waters being fragrant, pure, clear and calm. On their placid surfaces floated bouquets of the most lovely flowers, and by their sides grew many beautiful trees. Pools and lakes existed, and in these grew Water Lilies and the sacred Lotus. This latter flower here attained the highest perfection, the flowers being as large in circumference as a chariot wheel. There were blue Lotuses and yellow, red Lotuses and white, and in their petals the faithful find repose. Those who had doubts found their place among the sepals where they sat cross-legged. This wonderful place was adorned with seven terraces with rows of Palm trees and strings of bells, such as in olden times were often employed in pleasure grounds, since, when moved by the wind, they gave out sweet musical sounds, as do the kites of the Chinese when fitted with pan-pipes. The blossoms of the Mandarava rained down three times a day and thrice every night a shower of confetti. This is probably the Indian Coral tree (Erythrina indica) which is very common in some part of India, a white-flowered variety being said to grow in Salsetti. It was one of the five trees which grew in Indra's Paradise. The flowers appear, like those of the Forsythia, Daphne, Almond and a number of other trees, while as yet the leaves are wanting. In Ceylon it is planted like Privet or Laurel to make hedges, while, in Java, Coffee is cultivated under its shade. In Sukhâvatî, too, grew the best kind of Sandal Wood, the scent from which was, as it is still, very refreshing.

The birds included the peacock, cuckoo, parrots, ducks and geese, swans, cranes and others which came together thrice daily and gave a concert! Here the food of the inhabitants was not gross or material, but accorded with the elevated taste and desire of the holy denizens, all of whose wishes were gratified. Here were garlands, ointments, perfumes and powders of every description; flags and banners waved in the breeze, musical instruments were ever producing delightful strains, while the petals of various flowers fell in such abundance at regular intervals from trees other than the Mandarava that the feet compressed them four inches when one trod on the wonderful carpet. Here, too, grew the famous Bodhi-tree—the Tree of Knowledge, as in Eden—possessed of wonderful powers and virtues. But Sukhâvatî could boast other trees than those which formed wooden stems and produced leaves and blossoms like the mundane growths with which all are familiar. Here was the native forest of the Gem-trees. Some of these were of one or other of the precious metals—trees whose roots, trunks, branches, leaves, flowers and fruits were of pure gold or untarnished silver. Some combined two precious metals, while others were of rare gems, such as coral, pearl, beryl, crystal and diamonds. These with their different manner of fruits, recall the Tree of Life in the Paradise of God, which yielded twelve manner of fruits, while the leaves were for the healing of the nations (*Rev.* 22, 2). Whether there has been any borrowing here, or whether both were spontaneous and native products of the imagination, it is very hard to say.

People might go on for ever repeating the praises of Sukhâvatî, states the historian, yet they would never reach the end thereof. Even the merit of hearing the name excels all the other blessings of earth. At one time, so runs the story, the Blessed One, Bhagavat or Buddha, dwelt at Sravasti, not far from Fizabad, in the Geto Grove in the Garden of Anatha-pindaka, together with a large company of mendicant friars. Reference was made to a Buddhist country in the west which was known as Sukhâvatî, or the Happy Land, where dwelt an Arhat who taught the law. "Now why," it was asked, "is that land called Sukhâvatî, the happy?" The answer was "In Sukhâvatî there is neither bodily nor mental pain for living things. The sources of happiness are innumerable. That is why it is called the Happy."

Naturally, the question arose—How was access to be gained into this Paradise of the Blessed. Now Buddha insisted on the great truth that men reap as they sow, and a life of right doing alone led to immortality. But it is clear evidence that he was not the author of this fabulous story, since we find it definitely stated that it was not by a life of virtue that entrance was to be gained to Sukhâvatî. All that was necessary was that the dying should repeat the name of Buddha. "By repeating the name of Buddha often, particularly in the hour of death, you will go straight to Sukhâvatî, and be happy for ever." No wonder this ready means of securing eternal happiness appealed to the easy-going Oriental, and found peculiar favour in China and Japan. Max Müller is convinced that Buddha himself never knew the names Sukhâvatî, Amitabha or Avalokinsvara.

"I go to Sukhâvatî through thy compassion also.
To Sukhâvatî with its groves resplendent with gold;
The delightful, adorned with the sons of Sugata,
I go to it, which is full of many jewels and treasures,
And the refuge of thee, the famous and wise."

It is fifty years since, in China itself, I first took up the study of Max Müller's works on the Sciences of Language and Religion, and in compiling this chapter I have made free use of this discipleship, having utilised to the full my acquaintance with his *Last Essays*, *Sacred Books of the East*, *Life and Letters*, *Selected Essays*, *Biographical Essays* and other works, which helped to throw light on the subject. *Hilderic Friend.*

RHODODENDRONS.

SEVEN GOOD GARDEN SPECIES FROM CHINA.

THE showy colours of the hybrid Rhododendrons so largely grown nowadays are more or less familiar to everyone, but the species of the genus, with a few exceptions, are practically unknown in gardens. The explorations in China by Mr. E. H. Wilson and others during recent years have resulted in a large number of Rhododendrons being sent to this country, many of which are only of botanical interest, but some are worthy of being classed as first-rate garden plants. The following may be recommended, as they have been tested over a number of years, and have been found to be consistently good.

RHODODENDRON AUGUSTINII.—This is an upright-growing plant, about three feet to four feet high, and during May is covered with well-expanded flowers, each of which is rather less than two inches in diameter. The colour varies somewhat on different plants, ranging from pale-lilac to deep mauve or heliotrope, but is very pretty in any shade. The leaves are about two inches long and hairy on both surfaces, as also are the stems.

R. CHARTOPHYLLUM.—This charming species forms a plant from two feet to three feet high covered in May with close trusses of white flowers, which change to a pale bluish-pink with age, and are marked with a few, tiny red spots. The glabrous leaves are broadly-lanceolate in outline, terminating in an acuminate point. It is a very free-flowering and distinct species.

R. FASTIGIATUM.—This is a dwarf plant, about one foot in height, suitable for the rockery or the front of a bed. The stems are upright and clothed with narrow leaves, rather less than an inch long, of a grey tint when young, changing to dark green with age. The flowers are small and produced in compact trusses in early May. They are of a pleasing purple shade; a group of this species in full flower is very attractive.

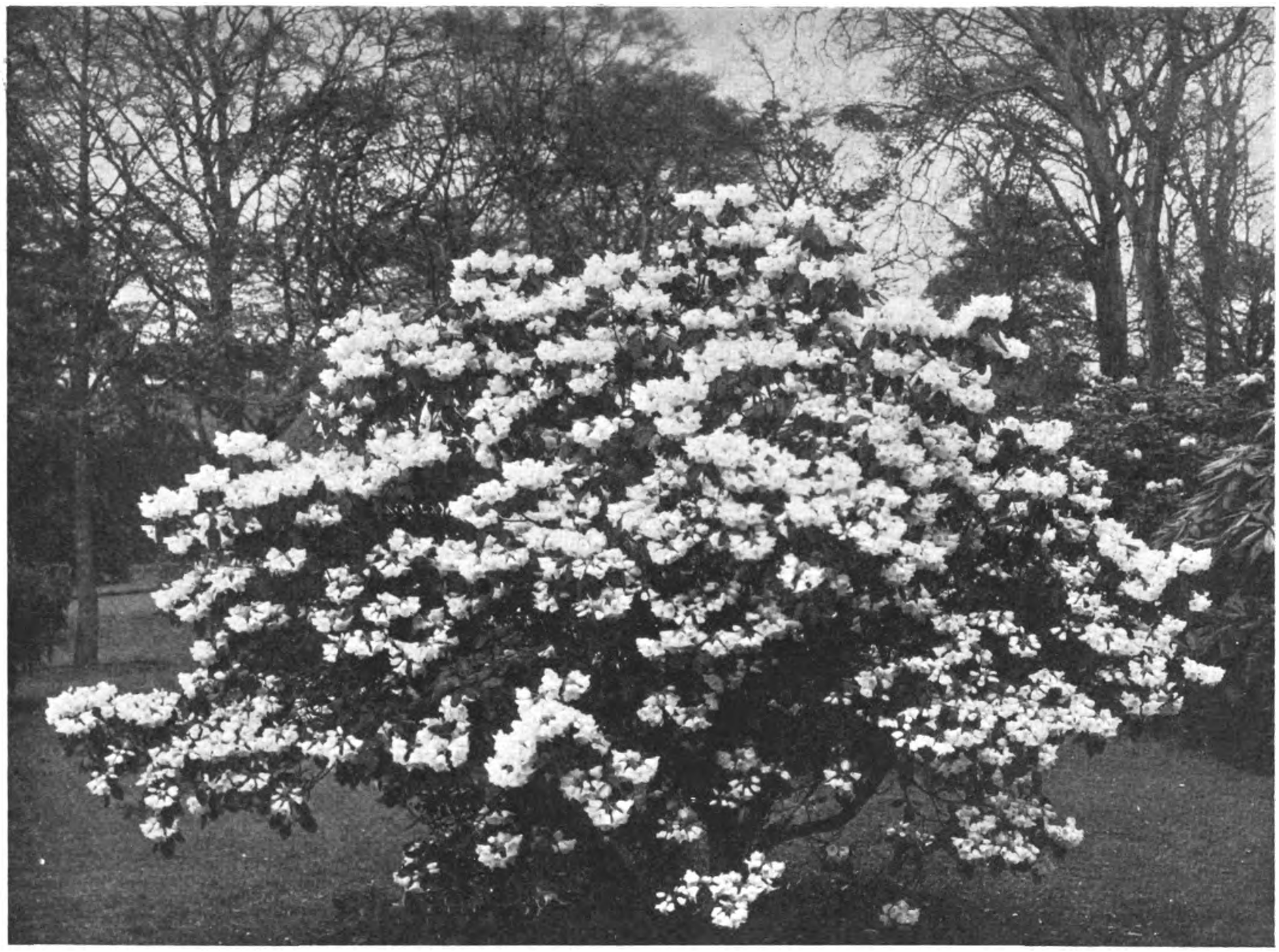

FIG. 173.—RHODODENDRON CAMPYLOCARPUM IN THE ROYAL BOTANIC GARDEN, EDINBURGH.

R. INTRICATUM.—This species may be described as the nearest approach to a blue Rhododendron in cultivation, and is decidedly the gem of the small-leaved, dwarf section. It forms a low, bushy plant, twelve inches to eighteen inches high by as much or more in diameter, clothed with narrow leaves an inch or less in length. The flowers open in the latter part of April and are individually small, but are borne profusely in small, compact trusses of from four to eight blooms. The colour is a pleasing shade of lilac-blue or mauve-blue, varying according to the light, but very effective. It is a decided acquisition for the rockery.

R. LUTESCENS.—This is an upright-growing species attaining a height of about four feet, with age. The branches are slender and clothed with deep green, lanceolate leaves about two inches long, ending in an acuminate point. The small and somewhat bell-shaped flowers are of a primrose-yellow colour, sparingly produced on young plants, but more freely when they are older and have become established.

R. RACEMOSUM.—This makes an upright plant, about three feet high, and has been introduced from China long enough to become fairly well-known, though it is not seen so often in gardens as it deserves to be. It differs from nearly all other Rhododendrons in that the trusses are produced axillary as well as terminally, especially on the young, strong shoots. The flowers open from mid-April to mid-May, and are produced in such profusion as to almost hide the leaves and stems. They vary in colour from pinky-white to rosy-red, and the ovate leaves are about an inch long, bright green above and glaucous beneath.

R. YANTHINUM.—This Chinese species is an upright-growing plant which will probably attain a height of three feet or so in time. The flowers open in May and are each about one inch across. The colour is somewhat difficult to describe but may be said to be of a deep, glowing claret-red or ruby-red shade, but is very distinct and effective. *J. Clark.*

RHODODENDRON CAMPYLOCARPUM.

INTRODUCED about 1851, this fine species from the Sikkim-Himalaya is by no means so well known as it deserves to be. The success which has attended its cultivation in the Royal Botanic Garden, Edinburgh (see Fig. 173), is fairly good evidence of its hardiness; the specimen illustrated bore an abundance of flowers this spring, and these were fortunate in escaping damage by frosts. R. campylocarpum is evergreen, and bears its pale yellow, bell-shaped flowers in terminal clusters. There may be five to eight flowers in a cluster and each flower two-and-a-half inches to three inches wide.

At Kew, R. campylocarpum grows in the Rhododendron Dell, and has remained unharmed by severe weather for about a quarter-of-a-century.

Sir Joseph Hooker described R. campylocarpum as "a small bush, six feet high, rounded in form, of a bright, cheerful green hue; and which, when loaded with its inflorescences of surpassing delicacy and grace, claims precedence over its more gaudy congeners, and has always been regarded by me as the most charming of the Sikkim Rhododendrons. The plant exhales a grateful honeyed flavour from its lovely bells and a resinous sweet odour from the stipitate glands of the petioles, pedicels, calyx and capsules."

BULB GARDEN.

MAY-FLOWERING TULIPS AT REGENT'S PARK.

FINE as the early-flowering Tulips are, and much as they are appreciated because of this quality of earliness, there is no doubt that the May-flowering section is the more popular. At this season Hyacinths and Narcissi have passed and there is less to compete with the May-flowering Tulips, so that at their flowering time their bright colours are predominant. A very fine display may now be seen in the Zoological Society's Garden at Regent's Park, where some 20,000 bulbs are arranged in a highly effective manner in the flower garden near the south entrance. The beds number about thirty, and in most of them the bulbs are planted closely, without carpet plants;

all have an edging of dwarf plants usually in a contrasting colour to that of the variety of Tulip in the bed, while a few beds are interspersed with other plants.

The scheme is carried out with about a dozen of the more popular varieties of the Cottage section, and predominant among these varieties are the beautiful T. macrospeila with its large, handsome, crimson-scarlet flowers and the rich Indian yellow Bouton d'Or; Picotee, with its gracefully recurved, rose-edged petals, and Inglescombe Pink, with its large, globular flowers giving a salmon glow, are also well represented. The blood-crimson flowers of T. Gesnerian aspathulata give a fine, distinct effect, as also does the heavily-flamed scarlet and gold of Fire Dragon, and the bright orange of Curacalla. Grand Maître and La Cereasmiese (?) give a tinge of purple to the picture, while the striking, large, white, egg-shaped flowers of Miss Jekyll accentuate the bright colours of the other varieties.

The growth of the plants shows extraordinary vigour, and in some varieties at least seventy per cent. of the bulbs are bearing two well-developed flowers, while in a few cases even three flowers to the bulb were noticed. A large bed opposite the refreshment saloon is planted with a combination of subjects and is strikingly effective. Bold groups of Iris Kharput planted at intervals throughout the bed make the nucleus of the scheme, while a wide band of scarlet double Daisies form the edge. Auriculas are interspersed as a groundwork, with Tulipa macrospeila and red and yellow Wallflowers furnish the spaces between the groups of Iris, the whole producing a pleasing combination of many colours. *A. P. C.*

FOREIGN CORRESPONDENCE.

EXOTIC FRUITS OF THE RIVIERA.

If, as I have stated in many articles, both in *The Gardeners' Chronicle* and in French horticultural periodicals, the variety of plants found in Riviera gardens is far below what it ought to be, this applies especially to exotic fruits, of which so many may be cultivated successfully here, but are very rarely found. I shall here shortly mention a few, returning eventually to this question in a more detailed manner in some future articles.

Everybody knows that the Citrus fruits prosper here in so far as climate is concerned, but the varieties found in the Riviera gardens are nearly all inferior to the varieties which could be cultivated just as well. Thus, instead of having beautiful and excellent Oranges, one finds usually inferior ones. A fruit which will have a great future on account of its remarkable qualities is the Vegetable Butter, or Avocado—Persea americana, of which several excellent varieties are quite hardy here.

The Myrtaceae contains many good fruit plants, of which several are quite hardy with us; best of all is the excellent Feijoa Sellowiana, of which, through selection over many years, I have obtained fruits with quite thin, smooth skin. The Strawberry-Guava Psidium Cattleianum, and several other good Guavas are also quite hardy on the Riviera. The beautiful climber, Pariflora edulis, with good fruits is equally hardy, and so are many Cactacaea, such as Opuntias, Cereus, and others which bear useful fruits.

Among the Palms, always very ornamental, are some with quite good fruits, and which I have also selected for many years, namely, the Butia (Cocos). Some of the varieties (of which I have described several in these pages) have fruits without fibres, and a taste almost exactly like that of a Pineapple.

These are only a few of the many exotic fruiting plants hardy here. *Dr. Axel Robertson Proschowsky, Jardin d'Acclimatation, Les Tropiques, Fabron, Nice, France.*

APIARY NOTES.

By the time these notes are printed, the honey flow will have begun in early districts. The usual rule for putting on the sections will serve for the "let-alone" plan of bee keeping, *i.e.*, so soon as the top of the combs show signs of whitening. But for those who desire to make the most of their bees this is not good enough. For instance, this is the time when, most of all, the beekeeper is likely to have the swarm that spells comparative failure. Swarms certainly mean increase, if that is desired, but increase may be obtained later without jeopardising the crop.

Here, then, is a method that will solve the difficulty. Choose the strongest colonies and run these for sections. Hunt up the queens, and place each one in a small hive, or nucleus, with one frame of sealed brood and the bees from two combs. Place two empty combs in the nucleus, one on either side, making sure there is a supply of honey. Now return to the strongest hives. Take out all the unsealed brood and place it temporarily in a spare body box, shaking off the adhering bees as this is done. The old hive will now contain all the flying bees, except those given to the queen, and all the sealed brood, and it will be queenless. What remains should fill one body box, for it is assumed two bodies are in each hive as previously advised in these notes. Place a crate of sections on top and leave it for seven days. The unsealed brood in the spare body-box should be placed on the top of one of the weak stocks. The bees will take care of it, and one stock can be given the gleanings from two or even three hives. That brood will mature and before the end of the honey flow will prove a grand stock for gathering stores for winter, or for extracting the run honey. Remember that all bees less than three weeks' old are useless for honey purposes, so by this method no bees that matter are taken from the section hives, the colony is relieved of brood rearing, and by removing the queen the danger of swarming is obviated.

But the stocks are queenless. Some theorists maintain that such a condition stops the bees working. This is not found to be so in practice. The brood left will be starting making queen cells at once, and that keeps them in good heart.

It is the ideal time for re-queening. If the stocks are hybrids, and therefore cross, buy the required number of queens from a specialist. If the stocks are pure-bred choose the best of the stocks and cut out sufficient cells to go round, leaving one for the stock itself. Then cut out all cells in the other colonies of their own making and give each a cell from the best colony. In a fortnight there will be young laying queens of the best strain in each hive; and because these queens are young and capable of using all the brood cells that are now available, the bees will go on carrying the honey upstairs to the sections, and all fear of swarming will have vanished. Should it be found at the end of, say, three weeks that the young queen has disappeared from either of the hives there is still the queen in the nucleus, and it is simple to reunite her to the parent stock. It should be emphasized that a week must elapse before the cells are cut out.

In the north or in backward districts these operations should be delayed. The time must be settled by estimating when the honey flow will begin. A week before the flow is the best time. Should it be desired to improve the strain by purchasing queens, be sure that they are introduced before the first cell in the hive can hatch, and before introducing the purchased queen make sure that every cell is destroyed. This is most important. A virgin queen will always kill a fertile queen, and one cell overlooked and left will mean the loss of the new queen.

Italian queens are getting a bad name for delicateness because they are not bred to withstand the cold and dampness of our English climate; but it is certainly true that many bee-keepers would be well-advised to re-queen their stocks, and now is the time to make preparations. *John Mavie.*

FRUIT REGISTER.

EARLY PEARS.

I know of no other fruit that requires more careful attention during the ripening period than early Pears. There are several excellent varieties that in their season are most delicious, but the length of time they keep good is very brief, and on that account I would not advise the planting of more trees than are sufficient to meet the demands of the establishment. The time for gathering early Pears must be studied carefully, for if the fruits are allowed to hang too long they become dry and worthless. I am more than satisfied that the best system of training the trees is as horizontal espaliers. This type of tree allows all light and warmth to circulate freely amongst the fruits, foliage and branches. Bush and pyramid trees are also very suitable for early Pears, which may also be grown on west walls, provided the roots are growing in well-drained, sweet, fertile soil. The following are the names of a few varieties which I have found to be very reliable in cropping in the majority of years:—

Colmar d'Été.—This is an early variety, the fruits ripening in the beginning of September. They are rather small but sweet and delicious when at their best. The trees usually form plenty of fruit buds and succeed both in espalier and bush form, although the fruits do not ripen so early as those of Doyenne d'Été by quite a fortnight or more. They are not so quickly over and on that point I prefer it.

Williams's Bon Chrêtien.—This variety is too well-known to need any comment from me with the exception that the fruits should be watched carefully and gathered at intervals of a few days so as to prolong the season. Fruits to be sent long distances by rail should be packed under-ripe.

Marguerite Marrilat.—I consider this to be one of the best Pears in its season, although it is rather on the large side. Well-coloured, medium-sized fruits are very good. When grown either as cordons on walls or as espaliers in an open situation trees of this variety give excellent results. The fruits are suitable for exhibition.

Beurré d'Amanlis.—This variety is a rather heavy cropper, and the fruits should be well-thinned. If worked on the Quince stock the roots should be well supplied with water in August, following a mulching of decayed manure. Heavy crops and dryness at the roots result in fruits of inferior quality.

Madame Treyve.—This variety succeeds well both on the Quince and Pear stocks. The fruits are richly flavoured in most seasons and ripen at the end of September.

Triomphe de Vienne.—I consider this one of the best Pears in its season. The individual fruits are of good shape and if gathered early the flavour is very good. They ripen at the end of September, a little earlier or later, according to the position and season. This variety succeeds well trained as cordons or espaliers; trees crop well on west walls. *H. Markham, Wrotham Park Gardens, Barnet.*

BIENNIAL FRUITING OF APPLES.

For the first time in ten years three trees of Fearn's Pippin in my garden have sufficient flowers for a good crop of fruits after bearing heavily the previous year. I am unable to account for this; it has nothing to do with the atmospheric conditions, as a tree in a neighbour's garden is not flowering, also trees of Devonshire Quarrenden and Old Hawthornden, which bore heavily last year have no flowers this year.

My trees have received no special attention; they all had a heavy dressing of chemical manure on February 2 last year. We seem to be far from understanding why certain varieties—as, for instance, Lane's Prince Albert and James Grieve—flower abundantly every year and give crops of fruit if the weather is favourable while other sorts only flower once in two years consequently they bear no fruit in alternate years, and sometimes fail to give a crop when they do produce flowers if the weather is unsuitable.

This is one of those questions which requires consideration from varying aspects; points for consideration are:—(1) Is the biennial fruiting inherent in the variety, and does it occur all over the kingdom in any given year; (2) is it a question of weaker growth and can it be overcome by application of manure at any period of the year; (3) is there any kind of stock which will overcome the habit of biennial flowering and fruiting; (4) would scions taken from one tree for five or six successive years all develop flowers in the same year eventually. *W. H. Divers, V. M. H.*

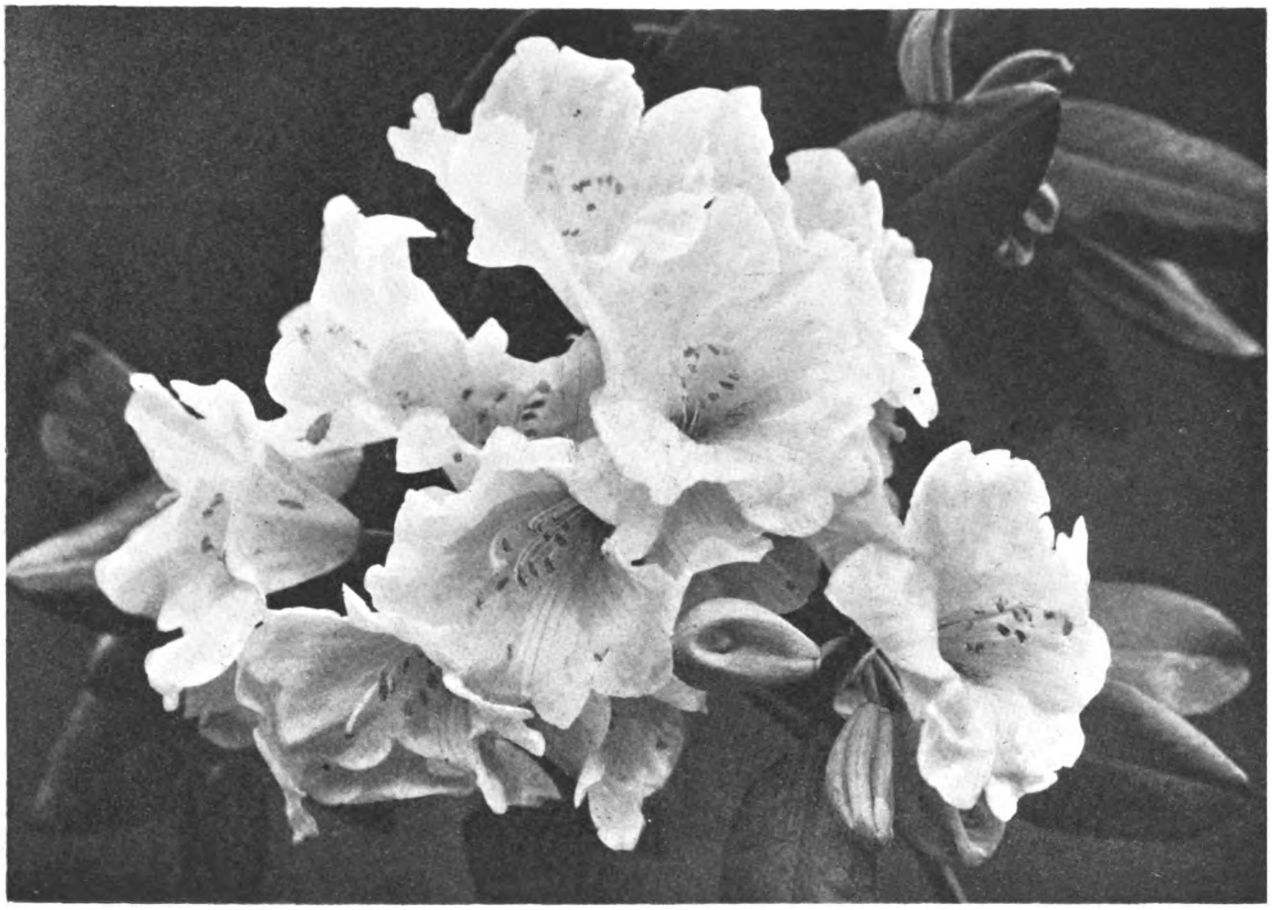

FIG. 174.—RHODODENDRON GLADYS.

R.H.S. Award of Merit, April 27. Flowers peach-pink. Shown by Lord Swaythling as R. campylocarpum × R. Fortunei. (see p. 330.)

MARKET FRUIT GARDEN.

SUCCESS OF WINTER SPRAYING.

It is always a comfort when definite results can be traced from the expensive and trying business of spraying. After careful search I have not so far been able to find a single aphis on Plums that were sprayed with tar distillate wash, and only one or two have been discovered on Apples. On trees that were not sprayed there is no difficulty in finding these and other pests. In the case of Apples, the attack is curiously patchy and in some cases severe. On one block of Worcester Pearmain, aphides occurred at the rate of about a dozen or more to a bud, whilst on another block of the same variety, just over the hedge, in another plantation, I have been unable to find anything more serious than a few psylla, and no aphis at all. Fortunately, this is one of those seasons when the aphides could be seen massed on the outside of the unopened buds. Probably they hatched out early during a mild spell, and then the buds were held back by cold winds, so that the pests could not immediately enter and hide themselves. This occurrence is always worth looking for, because aphides and Apple suckers, when thus exposed, are very easily killed by copious spraying with any good contact wash. In this case they were soon dealt with, leaving the way clear for the campaign against Apple scab, which was begun on the last day of the month.

VEGETABLE GARDEN.

MAIZE.

ALTHOUGH Maize, or Indian Corn, is very well known as a table vegetable in this country, its cultivation is not nearly so widely practised as is the case on the continent of Europe, and in North America, and comparatively little use is made of this nutritious summer delicacy. This is not due to climatic conditions, for although the plant is a heat-loving subject, its growth is very rapid in our climate, and from seeds sown in the open in May the modern, early-maturing varieties yield "cobs" by about the end of July, which are a valuable addition to the summer green vegetables, and it is not difficult to maintain supplies during the late summer and autumn.

Cultivation of this crop is of the simplest character, and although some growers raise plants in frames ready to plant out so soon as there is no longer danger of frosts, this is by no means necessary, and it is doubtful if anything is gained in time, for it is difficult to practise this method without giving the plant some check. Nothing is gained, however, by sowing too early outside, and it always pays to wait until the soil has become warm, when germination and growth are rapid. If sown on well-prepared soil all the after attention required is the occasional use of the hoe when the plants are commencing to grow and, should the weather be very dry, in August and September, occasional waterings may be necessary. Sutton's First of All is an excellent variety, yielding "cobs" of good size with milky seeds of exquisite flavour. *A. P. C.*

WITLOOF CHICORY.

I KNOW of nothing so useful as Witloof as an ingredient for winter salads, and no crop so easily blanched in winter. The cultivation of this Chicory is very simple but it repays for a little extra treatment, as the stronger the crowns the better and finer will be the heads when they are forced and blanched during the winter and early spring, and at a time when Endive and Lettuces are probably over.

The ground for this Chicory should be well-manured and dug deeply, mixing the manure with the soil thoroughly as the digging proceeds.

The seeds may be sown this month or very early in May, about one inch deep in drills made twelve inches to fifteen inches apart. When the seedling plants are of a suitable size thin them to six inches or eight inches apart and keep the beds clear of weeds by hoeing the soil on frequent occasions. By the end of the season the plants should have developed strong crowns. In autumn and winter batches of roots should be taken up at intervals, planted in large pots or boxes and placed in a Mushroom house or any place in which the temperature ranges from 45° to 50°, and from which the light can be excluded. On the approach of severe weather the crowns should be protected lightly with strawy-litter or dried Bracken. Lift the roots and place them closely together in trenches on a snug border and introduce them to the forcing house as required. *H. Markham.*

HOME CORRESPONDENCE.

Keeping Apples in Clamps.—The storage of Potatos in earthen clamps is widely practised, but I doubt if the keeping of Apples in the same way is well-known. It is, however, a method that has been considerably followed in the past in this county, Bedfordshire, and is occasionally made use of to-day. An acquaintance of mine recently informed me of a large clamp of Apples he saw some time since at Greenfield, a fruit-growing village some few miles from here. He said the fruit was in splendid condition; his exact words were: "The Apples looked like Oranges"—meaning they were clean and sound. This method of storing Apples impressed me as being so uncommon as to be worth recording. I have lived in several other counties, including such a recognised fruit county as Hereford, but I have never known the system of clamping Apples adopted. It is just possible, however, that the plan of clamping was put into use to avoid undue expense in erecting fruit rooms or sheds—such buildings being none too plentiful on the lands of many of the market fruit growers in this county. *C. Turner.*

Beds for Ericaceous Plants.—I think I made it clear in my letter (p. 240) that I did not presume to enter into a discussion or to cross swords with Mr. Puddle (p. 266), but I have spent and wasted much money in trying to grow calcifuge plants in a garden which is lime-laden. My first attempt was a bed for Rhododendrons, Kalmias and certain Lilies, made around my house. This I dug three feet deep and lined the sides with concrete to prevent the entrance of lime from the surrounding paths. The soil put in was beyond reproach, and all went well for two years, then growth stopped and the plants began to go back—the acid test for lime was positive. The main water here is certainly not free from lime, but I do not think that this accounts for the condition of the soil in this bed, for I have numbers of Azalea indica, A. amoena, etc. in pots, which frequently have doses of tap water, and they grow and flower well and the soil they are in only gives a very slight lime positive reaction. Ashes, I know, are lime free and not much favoured by worms; personally, I should prefer a hard foundation of clinker if I had to choose an alternative to a concrete foundation. In this neighbourhood, where one or two of my friends have adopted my plan, I have seen very bad crops of Liverwort, where the concrete bed was not on the slope, and this has been my reason for adhering to the sloping or concrete foundation. I have only a small garden, and as I have found no drawback from utilising tapwater, I have no hesitation in using a mechanical sprayer or a water can when necessary. The subject of lime is a difficult and interesting one. Chalk, marl and mortar seem to be the most poisonous to Ericaceous plants, whereas hard Yorkshire or Purbeck limestones appear to be innocuous or less appreciated in some cases. I have noticed, however, that the hybrid Rhododendrons, *e.g.*, Pink Pearl or Alice, are much less definitely calcifuge than are the species. It would be very interesting if we could have a list of Rhododendrons which have been found to be lime-resistant. R. intricatum and R. racemosa are two, and Early Gem is also not over particular. *M. Amsler, Eton Court House, Eton, Windsor.*

Gentiana lagodechiana.—In view of the frequent notes which appear in *The Gardeners' Chronicle* concerning the length of time taken in the germination of seeds of Gentians, it may be of interest to readers to know that seeds of Gentiana lagodechiana sown in a pot on March 2 of this year germinated in five weeks. The seeds were sown in the usual compost, very lightly covered with silver sand, and the pot was kept in a cold frame and covered with glass and a sheet of paper. Probably this quick germination may be accounted for by the fact that G. lagodechiana, being a late-flowering subject, the seeds may have been gathered only two or three months previous to sowing. *J. B. P.*

SOCIETIES.

READING AND DISTRICT GARDENERS'

The last fortnightly meeting of the spring session was held in the Abbey Hall on Monday evening, April 12, and there was a good attendance, presided over by the President, Mr. Frank E. Moring.

The lecturer was Mr. J. C. House, Westbury on-Trym, Bristol, who gave a splendid and intellectual resumé on "Plant Names and their Signification"—quite an original and uncommon subject. For an hour-and-a-half he claimed the closest attention of his audience as he set forth the various sources from which plants derived their names. At the close, Mr. H. H. Cook proposed, and Mr. J. Young seconded, a hearty vote of thanks to Mr. House for his interesting, enjoyable and educational lecture.

A feature of the meeting was the splendid exhibits staged in the competitive and non-competitive sections. In the competition for a decoration of hardy flowers and foliage for a dinner table, four feet by four feet, the first prize was awarded to Mr. A. W. Gower, Calcot Grange Gardens, for a dainty display; he was followed closely by Mr. A. H. Dow, Calcot Park Gardens; the third prize going to Mr. J. Wynn, Hammonds Gardens, Checkendon, and the fourth to Mr. H. Wynn, Luern's House Gardens, Goring Heath. In a class for three clumps of Polyanthuses, the first prize was won by Mr. J. Wynn, the second by Mr. T. C. Waite, Verona, Basingstoke Road and the third by Mr. A. H. Dow.

In the non-competitive section an Award of Merit was granted to Mr. G. Clark, Dyson's Wood Gardens, for a collection of Apples, ten varieties, all showing good keeping qualities. By the kindness of Mr. Clark's employer (Mrs. Worthington) the fruits were sent to the local hospital. An Award of Merit was also granted to Mr. F. Turner, Southview, Calcot, for excellent heads of Sutton's Harbinger Cabbage. The judges directed special attention to an excellent group of Schizanthuses shown by Mr. Gower.

A magnificent assortment of cut flowers was staged to be sent to the Royal Berkshire Hospital; this consisted of Arum Lilies, Daffodils, Violets, Wallflowers, Polyanthuses, etc., contributed by Messrs. G. Clark, J. Cocks, A. H. Dow, E. J. Dore, A. H. Fulker, A. W. Gower, C. J. Howlett, E. R. Janes, S. Jennings, C. Moulton, T. Simpson, F. Townsend, F. Turner, A. Webb, A. Watkins, T. C. Waite, J. Wynn and H. Wynn.

GLASGOW AND WEST OF SCOTLAND.

The closing meeting of the winter session arranged by the committee of the Glasgow and West of Scotland Horticultural Society was held on Wednesday, the 14th ult., when Dr. William Buchanan, of the Kirklands Mental Hospital, Bothwell, delivered a lecture on "Alpine Plants," Mr. Charles Young, president, occupied the chair.

After defining alpines as the plants of the higher altitudes of the mountains, and which mostly grow above the level where trees can exist and extend almost to the line of perpetual snows, Dr. Buchanan said they had no spring nor autumn, and had to make their growth, flower, and ripen their seeds in a short period of five months. The advent of summer to them was sudden. So soon as the snow melted they were plunged into scorching June sunshine and were exposed to all the winds that blow. In spite of the very different climatic conditions alpines could easily be grown in British gardens. Describing the characteristics of alpine vegetation, he said: (1) they were almost all perennials; (2) without exception they all had abnormally long roots, while the plant above ground might not exceed a few inches in height. This great root system served as a secure anchorage and enabled the plant, in periods of drought, to draw its water supplies from deep crevices where rain and snow had accumulated a supply of moisture; (3) dense, tufted habit of growth, with small, compact leaves on short stems, often arranged in rosettes. This close mat of foliage made the plant secure against storms and reduced evaporation from the leaf surface to a minimum. One of the commonest devices for checking evaporation was found in the covering of downy hairs, as seen in the Edelweiss, Antennaria, many Achilleas, Androsaces and Campanulas. The woolly web of Sempervivum arachnoideum served a similar purpose. The last characteristic was the flowers. These were borne on short stems, were large in proportion to the size of the plant, and were remarkable for the richness of their colouring and their sensitiveness to sunshine. The size of the flowers and the richness and diversity of colouring were devices to attract bees, butterflies and other insect visitors which were not numerous at high altitudes, and whose assistance in the work of cross fertilisation was so much to be desired, although in many of the mountain plants the essential organs were so arranged that, should cross-fertilisation fail, self-fertilisation latterly took place.

Discussing the principles underlying the successful cultivation of alpine plants in this country, he remarked that to make a comfortable home for them the site must be open and possess perfect drainage. The ideal stone was the weathered and water-worn limestone of Yorkshire, North Wales, Derbyshire and Westmoreland, while sandstone, which was abundant in the west of Scotland, was a good medium, retentive of moisture and providing a certain nourishment for the roots, but it had the disadvantage of bare lines, and it was difficult to avoid the appearance of artificiality in its use in a completed rock garden. Granite, flint, and slate were unsuitable materials, having no porosity and affording no nourishment. He put in a plea for the inclusion in every rock garden of a small moraine where several of the diminutive and difficult species that languished under other conditions could be made to flourish. At a later stage, the lecturer emphasised the suitability of alpine plants for small gardens, and gave a representative list of fifty species which would provide bloom over the whole of the year.

An interesting discussion followed, and several questions relating to animals, miniature shrubs, etc., were answered by Dr. Buchanan, who was complimented by the speakers on the excellence of the lecture.

A novel and attractive feature was a miniature rock garden, built by Mr. Stuart Paton, Cathcart, and clothed with plants from the lecturer's collection.

ROYAL SCOTTISH ARBORICULTURAL.

At a meeting of the Council of the Royal Scottish Arboricultural Society, held in Edinburgh early in April, Sir Hugh Shaw-Stewart, Bart., presiding, twenty-one candidates were admitted to membership. Mr. George Leven, Bournont, Forres, reported that he had been successful in forming a local committee in connection with the Society's exhibition of forestry at the Highland show at Kelso. The Secretary submitted a programme prepared by the Director of Forestry of the Irish Free State for a week's tour in that country, and particulars of two local excursions were also submitted, the first to be held in Roxburgh, and the other which will extend over two days, to be held in Lanarkshire and Dumfriesshire. The Taxation Committee reported that they had made a representation to the Secretary of State for Scotland in connection with the position of woodlands in the new Rating Bill, and the Committee agreed to make a representation pointing out the dangers to plantations in the Heather Burning Bill as it at present stands. The Education Committee reported that their proposals for circulating illustrated lectures in rural schools were practically completed, and that an endeavour was to be made to interest Boy Scouts and Girl Guides in forestry.

NATIONAL AURICULA AND PRIMULA.

(NORTHERN SECTION)

THE fifty-fourth annual show of the National Auricula Society, held on April 24, at the Coal Exchange, Manchester, was fixed for an early date. The promise of Easter, with its accompanying bright and genial weather was not fulfilled, and plants which were moving quickly at the first sign of spring, bidding fair for early bloom, seemed to hesitate and then stand still under the depressing influence of cold winds and dull light. Expectations were not realised, and exhibits were scarce in this year which has been, perhaps, one of the worst growing seasons on record.

The quality of the flowers was excellent, but there were few specimens of the edged varieties of Auricula. The alpine classes were well-filled with bright specimens, bold trusses and sturdy plants. If the gold-laced Polyanthus, that rare old favourite, was not much in evidence, the seedlings that were tabled were refined examples, very creditable to their respective raisers,; although many came from the fringe of the Pennine range of hills, the plants did not seem so hardy and virile as one would like to see them. The edged varieties of Auricula were rather undeveloped, but it was pleasant to see Shirley Hibberd here and there and specimens of Acme and Ossian. There were many promising seedlings staged—of green edges, C. F. Faulkner and Oakmore were excellent. Phoebe should be seen again when in better vigour. Guardsman, a crimson self, and Purple Gem were pleasing alpine seedlings. Doris Parker, the best seedling alpine of last year, in shades of buff and brown, was carrying out its early promise. Dr. Pegge and Midas were not so good as usual; Roxborough, a mauve; Argyle, and its progenitor Argus, were noteworthy; Roodwood, a descendant of Alice Barker, was a pleasant example Lucrece had not its usual quality; Mrs. K. Thompson was a bright jewel. Two seedling alpines of Mr. Attwoods', Jack Point, in brown and buff shades, with gold centre, and Strephon, in violet tones, were very pleasing. In class 25, Vestal, with a shaded mauve body colour, was attractive and creditable.

Mr. **MOTTERSHEAD** showed a fine gold-laced seedling Polyanthus named Muriel, which obtained a Certificate of Merit.

In the classes for show varieties, Mr. **KEN THOMPSON**, of Hale, was an easy winner of the Silver Cup; the Premier Medal with Shirley Hibberd, and a Bronze Medal with a green-edged seedling, C. F. Faulkner. Mr. V. G. **ATTWOOD** was a good second. In the alpine section, Mr. **THOMPSON** was supreme, taking the Silver Cup for aggregate points, and the Premier with his seedling Doris. Col. C. E. **WALKER**, of Windermere, was second, and the seedling Jack Point was awarded a Bronze Medal.

Mr. C. F. **FAULKNER** put up a display of plants of his own raising, showing what a wonderful variety can be obtained by cross fertilisation. Mr. K. **THOMPSON** had a massed group of alpine varieties which was very effective and instructive, enabling the spectator to imagine what a cold house full of them would look like. Mr. **MOTTERSHEAD**, of Crewe, displayed a fine collection of Polyanthuses and blue Primroses.

For exhibits of gold-laced Polyanthuses, Mr. T. M. **BROOKS**, of Tarvin, won the Silver Cup; and Mr. A. **ROBINSON**, of Rochdale, the premier medal.

Certificates of Merit for new varieties were awarded as follow: Green-edge, C. F. Faulkner, raised by Mr. K. **THOMPSON**; Oakmere, raised by Mr. C. F. **FAULKNER**. Self: Guardsman, raised by Miss K. **THOMPSON**; Purple Gem, raised by Mr. C. A. **FAULKNER**. Gold centre Alpine: Jack Point, raised by Mr. V. G. **ATTWOOD**. Light centre Alpine: Strephon, raised by Mr. V. G. **ATTWOOD**, and Winifred Thompson, raised by Miss K. **THOMPSON**.

One hundred years ago there were fifty Auricula shows held in England. How strange it is that this charming spring flower, so full of fascination, has been neglected, and is now cultivated and carried on in the main by loving enthusiasts whose garden space is cramped but whose devotion to the cult is inextinguishable. Nowhere is the interest in the Auricula more keen than in the North of England. The show was well attended, and new members were enrolled; recruits will be welcomed and instructions offered as to purchase of plants and as to methods of culture by the Hon. Secretary Mr. V. G. Attwood, 43, South King Street, Manchester. *C. W. N.*

INSTOW SPRING FLOWER SHOW.

THE spring flower show held at Instow early in April was one of the best of the series held in the little north Devon town. The flowers exhibited were unusually fine, although, owing to the earliness of the season, the varieties exhibited were mostly different to those seen in previous years. Miss K. M. Hinchliff, who organises the exhibitions, is to be congratulated upon the success of the show and upon her numerous fine exhibits, including one of fifty-five varieties of Daffodils which contained capital flowers of Mary Copeland, Irish Pearl, Burgomaster Max, Gwendal, Helga, Croesus and Silver Rose. Mr. R. **SEYMOUR COBLEY** exhibited thirty varieties of Daffodils, including Robespierre, Nimrod, Horace, Firetail, Silver Chimes and some magnificent unnamed seedlings. The Rev. T. **BUNCOMBE** of Black Torrington, submitted a collection of forty-eight varieties, while Mrs. **DODD** of Instow contributed thirty-six sorts. Mrs. C. **HINCHLIFF** showed a collection of twenty-four varieties and Mr. R. A. **FOSTER MELLIER**, of Bude, staged twenty varieties which included Glory of Lisso and Silver Salver.

In the pot plant section Miss **HINCHLIFF** arranged a group consisting of Arum Lilies and Cinerarias. Lady **CHICHESTER** contributed Freesias, Cyclamens, Deutzias and Cinerarias, while Japanese Cherries and Begonias were notable in Mr. **FOSTER MELLIER**'s display. Other interesting and beautiful exhibits were Polyanthuses from Mrs. **WHITE ATKINS**; Primula Juliana, P. Sieboldii, P. denticulata and Polyanthuses from Miss **ATKINS**; fine sets of Polyanthuses from Miss **HINCHLIFF** and Mr. D. **HOYLES**, and delightful exhibits of choice flowering shrubs from Mrs. **KITSON LOCK**, Mrs. and Miss **HINCHLIFF**, Mrs. and Miss **WHITE ATKINS**, Mr. **HOYLES** and the Rev. T. **BUNCOMBE**.

The exhibition was held, as usual, in the Instow Rifle Hall, and as on previous occasions, no prizes were offered, and no restriction made in the number or size of the exhibits contributed.

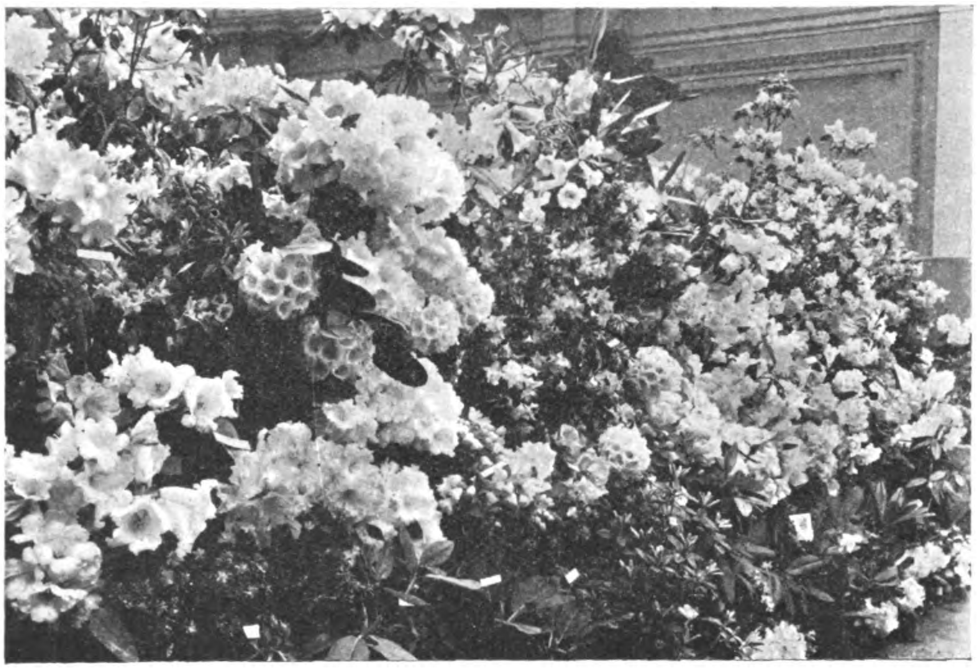

FIG. 175—MESSRS. R. GILL AND SON'S FIRST PRIZE TRADE EXHIBIT AT THE RHODODENDRON SOCIETY'S SHOW ON APRIL 27.

(see p. 330.)

GLAMORGAN DAFFODIL.

THE annual show of the Glamorgan Spring Flower and Daffodil Society, held at the Town Hall, Bridgend, on April 14, was an unqualified success, being well-supported by exhibitors and the general public. There were 166 entries, and the joint secretaries, Miss Audrey Pritchard and Miss Ackland Allen, are to be congratulated upon the able manner in which they organised the exhibition.

Daffodils constituted a delightful feature, Sir **JOHN LLEWELYN**, Bart., being the principal prize winner in this section with many beautiful blooms. Sir **SYDNEY BYASS** and Mrs. **MACINTOSH OF MACINTOSH**, also staged excellent exhibits. A group of Rhododendrons staged by **ADMIRAL HEANAGE VIVIAN** was greatly admired, as it revealed a very high standard of cultivation.

Hardy spring flowers were well represented. The first prize winners in this section were as follow:—Four varieties of Polyanthuses, Sir **SYDNEY BYASS**; six varieties of Primroses, Sir **SYDNEY BYASS**; three bunches of Violets, Mrs. **MACINTOSH OF MACINTOSH**; six varieties of hardy Primulas, Sir J. D. **LLEWELYN**; twelve Anemones, Mrs. D. C. **EDMUNDES**; six vases of outdoor, unforced, flowering trees or shrubs, Mrs. **NICHOLL**; six vases of hardy spring flowers, Capt. **TALBOT FLETCHER**; a collection of hardy, unforced, spring flowers, suitable for a rock garden, Miss **AUDREY PRITCHARD**.

DEESIDE (ABERDEENSHIRE) FIELD CLUB.

THE annual meeting of this Club was held on Saturday in the Banchory Town Hall, some eighteen miles from Aberdeen, the Marquis of Aberdeen and Temair presiding. After tributes had been paid to the late Mr. William Murdoch, the first secretary of the Club, Mr. J. Bentley Philip, joint secretary, submitted the report for 1925, and said that the membership of the Club now stood at 500, consisting of 420 ordinary members, twenty-seven honorary members, twenty-three life members and three associate members. Mr. W. Robertson, Kininvie, Banchory, the treasurer, submitted his financial statement for the year, which showed that the income amounted to £206, and after meeting all expenses there was a balance of £69 at the credit of the Club. Both reports were adopted, and the officials warmly thanked for their valuable services.

Dr. Douglas Simpson reported on the work being done at Kindrochil Castle, and a contribution of £75 towards the expenses of excavation was again voted by the Club. On the motion of Mr. H. F. Campbell, the following office-bearers were re-elected :—President, the Marquis of Aberdeen and Temair ; secretaries, Mr. J. S. Davidson, Cairnlee, Bieldside, and Mr. J. Bentley Philip, Aberdeen ; treasurer, Mr. W. Robertson, Kininvie, Banchory ; recorder, Mr. Theodore Watt, Aberdeen. The vice-presidents were all re-elected with the addition of Sir Francis Outram, Bt., Aboyne. It was resolved that towards the end of this year a third number of the *Deeside Field* should be published, Lady Aberdeen warmly supporting the proposal, and describing the *Deeside Field* as a delightful Christmas present to send to one's friends.

Mr. R. M. Neill, Aberdeen, in introducing a new venture, said that one of the most laudable branches of the Club's activities was the study of natural history in the Deeside area. They knew a great deal about the larger flora and fauna in the Deeside area, but little or nothing about lesser flora and fauna—what he might term the microscopic flora and fauna of the district. He had suggested to the executive that they should give their approval to an endeavour to gain a little knowledge about the minute life on Deeside, and he had been encouraged to bring the proposal before the annual meeting. He moved that a small committee be formed to enquire into the possibility of microscopic studies being taken up by the members. Specimens could be collected at the Club's outings without interfering with the ordinary business of the Club. The proposal was agreed to and a small committee formed to make arrangements. The proposed summer programme was approved, the details being left to the executive committee.

ROYAL HORTICULTURAL.

May 4 and 5.—Ample testimony to the enterprise of nurserymen was found in the excellent exhibition provided for the Fellows on the above dates at Vincent Square. Notwithstanding the difficulties of transport and the prospect of being stranded in London as a consequence of the general strike, the hall was well filled with interesting and effective displays, chiefly from trade growers. Tulips were shown extensively, and other prominent subjects on view were Cinerarias, Hydrangeas, Carnations, Roses, Alpine plants and trees and shrubs.

The attendance was small.

Orchid Committee.

Present : Mr. R. Brooman White, Sir F. W. Moore, Mr. H. T. Pitt and Mr. C. H. Curtis.

The above were the only members who signed the attendance book. No novelties were forthcoming.

The only Orchids shown were interesting examples of Eulophia purpurea, with a six-feet spike, and pale and dark forms of Serapias grandiflora from Azambuja, each with four spikes of flowers, the dark form having a large purplish-red lip. These were exhibited by Mr. W. **Van de Weyer**, Cliffe House, Dorchester.

Floral Committee.

Present : Mr. Gerald W. Loder (in the chair), Mr. T. Hay, Mr. H. J. Jones, Mrs. H. L. Smith, Mr. Reginald Cory, Mr. J. M. Bridgeford, Mr. Donald Allan, Sir F. W. Moore, Mr. Arthur Turner, Mr. W. B. Gingell, Mr. L. R. Russell, Mr. D. B. Crane, Mr. C. Williams and Sir Wm. Lawrence.

As a result of the difficulty of reaching town there were insufficient members of the Floral Committee present to form sectional quorums consequently those who came combined to form one Committee and made awards as follow :—

Awards of Merit,

Erica umbellata.—A pretty species with small, urn-shaped, rosy-mauve coloured flowers ; the white filaments protrude slightly from the closely contracted apex, and show the bright chocolate-red stamens. Shown by Mr. **Van de Weyer**, Dorchester.

Escallonia hybrida C. F. Ball.—In this hybrid the flowers are large for an Escallonia and not so freely produced as in some well known species and hybrids. In many instances the flowers are solitary, and in others there are three or four in a short, loose spike. The new foliage is light green and the flowers bright carmine. Shown by Mr. R. C. **Notcutt**, Woodbridge.

Columnea microphylla.—A handsome species with large, hooded flowers, scarlet with yellow markings and the front of the tube yellow also. Shown by Sir **Wm. Lawrence**, Burford Lodge, Dorking.

Viburnum utile.—A slender-branched elegant shrub with narrowly-lanceolate leaves which are shining green above and silvery beneath. The small white flowers are carried in fairly large, flattish, terminal clusters. Shown by the **Marquis of Headfort**, Kells.

Rhododendron radicans.—One of the newer discoveries and apparently a neat low-growing plant suitable for the rock garden. When in bloom the height is scarcely more than three inches. The solitary flowers are freely produced ; they are flattish, about 1¼ inch wide, of soft purplish rose colour with a few spots of deeper hue on the upper segment. The tiny, shining leaves, are half-an-inch long, slightly hairy and closely set on the densely twiggy growths. Shown by Mr. J. B. **Stevenson**, Tower Court, Ascot.

Berberis vernae.—A graceful species with slender, arching branches bearing a little pendant raceme of greenish-yellow flowers from each tiny leaf cluster. It somewhat resembles B. kansuensis but is smaller and less effective. Shown by the **Marquis of Headfort.**

Auricula Queen Mary.—In this fine alpine variety the central area of the large flowers is pale creamy yellow, the outer portion being deep red-purple with purplish margin. The flowers are carried in large trusses. Shown by Mr. **James Douglas.**

Rose Lady Sylvia.—A gloriously beautiful H.T. Rose, of lovely form and colour ; the latter is soft pink or deep blush, with a soft orange-salmon glow at the bases of the broad petals. Shown by Mr. **George Prince.**

Groups.

Messrs. **Stuart Low and Co.** contributed a very interesting display of Acacias, fine plants of Aotus gracillima, Boronia polygalaefolia and Metrosideros, flanked by groupings of Hippeastrums, Richardia Pentlandii and Carnations. Carnations were also shown by Messrs. **Allwood Bros.** and Mr. C. **Engelmann**, the latter displaying particularly fine flowers of Benora, Orange Sunstar, Betty Lou, Saffron, and Tarzan.

Excellent blooms of Roses were exhibited by Messrs. B. R. **Cant and Sons**, and in their contribution were noted fine flowers of Covent Garden, Mrs. Oakley Fisher, Padre, Lady Wakefield, Joan Cant, a white variety of exhibition size, and Cecil, a large golden-yellow, single variety. Mr. E. J. **Hicks** contributed a very bright set of Roses which included vases of fine blooms of Souvenir de Claudius Pernet, Mrs. Foley Hobbs, Lady Plymouth, and America. In Mr. G. **Prince**'s group the flowers of Roselandia and Lady Sylvia were conspicuously good, while other Roses of fine quality included Mme. Butterfly and Edith Cavell. Mr. J. H. **Pemberton** exhibited Polyantha Roses, standards of Lady Reading and Ella Poulsen rising above dwarf and freely flowered plants of Carrie Koster, Edith Cavell, Topsie, and Chatillon Rose.

Messrs. J. **Cheal and Sons** exhibited cut sprays of the finely-coloured Pyrus Scheideckeri and P. aldenhamensis which has deep, almost ruby-coloured flowers. In addition, they had standard plants of several kinds of Cytisus, Lilacs and Rhododendrons, and a small group of Dahlia flowers. Messrs. L. J. **Endtz and Co.**, of Boskoop, contributed two groups of mollis Azaleas, all well-flowered and carrying blooms in various shades of pink, orange and salmon. Mr. R. C. **Notcutt** filled one corner of the hall with a capital selection of double and single Lilacs, over which rose standard specimens of Cytisus kewensis, C. Dallimorei, C. Beanii, C. praecox and C. scoparius var. prostratus. Pyrus Eleyi was also well-shown in this exhibit.

Messrs. **Waterer, Sons and Crisp** contributed a large collection of alpines and other hardy plants, among which there were capital groupings of Primula japonica var. Etna, Oxalis enneaphylla, Incarvillea grandiflora, Iris cristata, and the beautiful dwarf Wargrave variety of Trollius pumilus. In addition to cut sprays of Rhododendrons, Mr. G. **Reuthe** exhibited many interesting hardy plants, notably Gentiana verna var. angulosa and Meconopsis integrifolia. Messrs. **Baker**'s exhibit included Primula secundiflora, many examples of hybrid Brooms, Irises and a selection of Trollius. Messrs. **Skelton and Kirby** showed Veronicas, Cytisus, some capital varieties of Trollius and alpine Violas. The **Misses Hopkins** also showed alpines in variety, while Mr. G. W. **Miller** displayed brilliantly-coloured Polyanthuses and numerous varieties of Trollius europaeus. In Mr. F. G. Wood's group we noticed well-grown examples of Veronica gentianoides, Potentilla fragiformis, Saxifraga caterhamensis, Daphne Cneorum and Azalea rosaeflora. Messrs. B. **Ladhams** had an alpine garden in which Myosotis Orion, brilliantly-coloured varieties of the double Daisy and the bright Trollius Orange Glow, were conspicuous. From the **Maytham Gardens** came examples of Berberis vulgaris set in grey pots, a richly coloured form of Primula japonica, Geum Borisii, several very large spikes of Reseda lutea and vases of Clianthus puniceus, Veronica Hulkeana, Thermopsis montana and Abutilon vitifolium. Mr. J. **Robinson**, Eltham, was an exhibitor of small alpine plants, including many Violas suitable for the rock garden Viola Bluestone was conspicuous in the exhibit from Messrs. W. H. **Rogers and Son**, which also included Leptospermums, Campanula muralis var. major and a fine group of Daphne Cneorum.

Hydrangeas in great variety and carrying fine heads of bloom were submitted by Mr. H. J. **Jones**, whose handsome display contained capital specimens of the green-tinted Neige Orleanaise ; the deep pink Mrs. H. J. Jones, the brightly-hued Matador, Etencilant, Parsifal, and the deep blue Vicomte Vilraye. Close to this exhibit was a capital collection of Dracaenas from Messrs. L. R. **Russell, Ltd.**, wherein there were well-grown specimens of D. Victoria, D. Sanderiana, D. Lord Wolesley, and the attractive D. deremensis var. Bausei. Messrs. **Sutton and Sons** filled a considerable floor space with an exhibit of Cinerarias, these including numerous elegant varieties, notably Dwarf White Star, Feltham Beauty, a charming blue shade ; Intermediate Pink, of lovely colour ; Old Rose, and Dwarf Pink. Mr. E. **Wettern**, South Croydon, also contributed a group of Cinerarias, mostly blue-flowered varieties. Mr. **James Douglas** exhibited alpine and show Auriculas, and it was interesting to observe several good plants of the old, green-edged variety Shirley Hibberd.

Messrs. **Reamsbottom** contributed a bright display of Anemones and Mr. C. **Turner** showed a collection of choice Lilacs. A small but interesting exhibit of Proteaceous plants, unfortunately all unnamed, was shown by Mr. P. R. **Bolitho**, Parklands, Shere, Guildford, and Messrs. A. **Reeves and Co.**, Old Catton, Norwich, showed a variegated Crataegus with small, pale leaves.

Narcissus and Tulip Committee.

Present : Mr. Charles H. Curtis (in the chair), Mr. W. F. M. Copeland and Mr. C. W. Needham.

No novelties were considered as there was not a full quorum of the Committee present.

GROUPS.

Tulips were finely shown by Messrs. DOBBIE AND CO., whose flowers were well-grown and well-arranged ; a few outstanding varieties in this extensive display were the Parrot variety Fantasy, the bronze Boadicea, Vesta, pale yellow ; Mrs. Hoog, deeper yellow, of fine form ; Inglescombe Pink, Mrs. Moon, the pure white Carrara and the yellow and scarlet Zany.

Scarcely less attractive was the big group of Tulips contributed by Messrs. BARR AND SONS ; this contained a large selection of varieties, including Mrs. Moon, Inglescombe Yellow, Avis Kennicot, Walter T. Ware and Gesneriana lutea pallida, all yellow sorts ; Fire Dragon, Flamed Crown, Scotia, and Marksman, in shades of scarlet, often with yellow markings.

Messrs. R. H. BATH had a bright display of Tulips in which we noticed excellent examples of Wedding Veil, Bouton d'Or, W. T. Ware and Inglescombe Pink. Major FLETCHER, Bronwylfa, St. Asaph, contributed well-grown Tulips, but the blooms were not well arranged. The exhibit of Tulips from the WELSH BULB FIELDS contained many very fine flowers, notably of Suzon, Glow and Joseph Chamberlain, but in many vases the blooms were unduly crowded.

Messrs. J. R. PEARSON AND SONS had a pleasing exhibit of Tulips wherein the varieties Phyllis, Suzon, Inglescombe Pink, Valentine and Prince of the Netherlands were conspicuously good. The Rev. ROLLO MEYER, Watton Rectory, Hertford, exhibited a capital collection of well-grown, late-flowering Tulips, a few of his best blooms being those of the varieties Inglescombe Pink, Clara Butt, Dom Pedro, Boadicea, Sir Harry, Margaret and The President.

Fruit and Vegetable Committee.

We could find no signatures of members of this Committee, but there were one or two specimens of fruits sent, apparently for naming.

ROYAL CALEDONIAN.

AT the recent monthly meeting of this Society held at 5, St. Andrew's Square, Edinburgh, Mr. W. J. Thompson, president, in the chair, a paper on " Bees, Beekepers and Gardeners " was read by Mr. Avery, Edinburgh and East of Scotland College of Agriculture.

There was an exhibit of alpines from Messrs. LAIRD AND DICKSON, Pinkhill Nursery, Edinburgh, which was awarded a silver medal. Mr. D. ARMSTRONG, The Drum Gardens, Gilmerton, exhibited Tritonia Prince of Orange.

In a competition for the best exhibit of Narcissi, the first prize was awarded to Mr. J. WEIR, 4, Churchill Place, Edinburgh ; Mr. J. ARNOT, Hillview Terrace, Corstorphine, being placed second.

TRURO SPRING FLOWER SHOW.

THE spring flower show which opened at Truro on Tuesday, April 20, was a wonderful exhibition of the products of the kindly climate of the west. To up-country growers and cultivators the show was an education as to what may be grown in Cornwall. The increased hall accommodation of Truro has resulted in the show being staged much better than in any previous year, and almost a record in attendance was created on the afternoon of the first day.

The judges included such well-known people as the Marquis of Headfort, Sir Charles Cave, Messrs. Gerald Loder, C. Musgrave, M. Fenwick and R. Veitch. In all probablilty the most glorious exhibit in the whole show was the wonderful collection of Rhododendrons staged by J. C. WILLIAMS, Esq., of Caerhays Castle, and this exhibit contained such a wealth of new hybrids and species of every group of Rhododendrons that it would be unfair to pick out any for special mention. The collection, however, did represent one of the finest of cut Rhododendrons ever brought together for an exhibition.

Next in importance must be placed the wonderful competitive exhibits of cut shrubs, and in the class for twelve varieties, not including Rhododendrons, the first prize collection by the Rev. A. T. BOSCAWEN, Ludgvan, was very fine. This exhibitor was successful in flowering and staging the Waratah (Telopea oreades). Other noteworthy plants in this group were Anopterus glandulosus, Erica melanthera, Prostanthera rotundifolia, Diosma uniflora, Edwardsia tetraptera and Leptospermums in variety. The second prize exhibit in this class was staged by Mrs. BOLITHO, of Trewidden, Penzance, who showed Rhaphiolepsis indica, Grevillea Preissei and Enkianthus campanulatus. In the smaller collection for Australian shrubs the Rev. A. T. BOSCAWEN, of Ludgvan, was again placed first, his Hardenbergia Comptoniana being very fine.

In the class for Acacias—which do exceedingly well in the west country, and which should be grown as a commercial proposition in many districts—Mrs. HENDERSON BULL, of Falmouth, took the first prize with A. armata, A. verticillata and A. hybridum. VISCOUNT FALMOUTH was placed second with A. verticillata, A. melanoxylon and A. longifolia.

In the Rhododendron class for twelve jars of twelve distinct species, Mr. BARCLAY FOX, Budock, was first with R. Dalhousiae, R. habrotrichum, R. bullatum, R. Nuttallii, R. haematodes R. Lindleyi, R. Falconeri, R. neriiflorum, R. campylocarpum and R. Aucklandii. The second prize went to Major G. H. JOHNSTONE for many of the species named above and well-grown examples of R. Delavayi, R. ficto-lacteum, R. Farreri and R. Maddenii. The third prize fell to A. M. WILLIAMS, Esq., M.P., whose examples of R. croceum, R. haematodes and R. dichroanthum were very fine. Mr. MAGOR'S specimen of the difficult R. niveum in this class was particularly worthy of mention.

P. D. WILLIAMS, Esq., of Lanarth, St. Keverne, not only showed that he was a master of Daffodil cultivation but that he could also produce wonderful Azaleas. His specimens of the Kurume variety, Hinomayo, were very fine and took the first prize in this class.

In the class for sprays of evergreen Rhododendrons of the triflorum type, Mr. MAGOR was first with fine examples of R. ambiguum, R. oreotrephes, and R. Augustinii. The exhibits in the class for scented Rhododendrons were very much admired, the first prize being won by VISCOUNT FALMOUTH with R. Maddenii, R. Lady Alice Fitzwilliam and R. Princess Alice. In the Chinese mountain Rhododendron section, A. M. WILLIAMS, Esq., showed R. saluenense, R. sphaeranthum and one of Forrest's species.

In the section for twelve varieties of spring flowers, Capt. DOWMAN, of Falmouth, showed some very fine examples of Myosotidium nobile, Sparaxis, Fire King and Cyclamen repandum. In the smaller section for this group of plants Miss LAVENDER WILLIAMS, of Lanarth, St. Keverne, won first prize with flowers which included the Bulgarian Thistle, Tulipa viridiflora, Vinca acutiloba and the beautiful, yellow-spathed Lysichitum camtschatiense. In the alpine section Miss SKINNER, of St. Clements, Truro, obtained first prize for a beautiful tray of twelve alpines.

The class for six vases of hard-wooded shrubs excluding Rhododendrons, was very keenly contested, and Miss WINGFIELD of Penzance, won the first prize with well-grown examples of Eriostemon nerifolius, Leptospermum scoparium var., Cytisus proliferus and Boronia megastigma. The second prize went to Major G. H. JOHNSTONE whose collection contained a wonderful specimen of Rosa Banksii.

Tulips were well-shown, and there was very keen competition in most of the classes. In the collection of nine varieties, Col. PAYNTER, St. Buryan, was first, whilst in the section for six varieties, PARK FARM, Truro, won the premier award with finely grown samples of Pride of Haarlem, Clara Butt, Harry Veitch, Faust and Melicette. Mr. F. W. LAWSON received the premier award in all classes for Narcissi—as distinguished from Daffodils. The Anemones in the show were very poor, but excellent Lily-of-the-Valley came from Mr. ROGERS, of Penrose.

The trade was well represented, and the display staged by Messrs. R. VEITCH AND SON, of Exeter, contained some very uncommon and rare plants. These included Lysichitum, Pimelia, Leptospermum Boscawenii, Grevillea oleioides and Dipelta ventricosa. Carnations were finely shown by Messrs. ALLWOOD BROS. whose best varieties were Topsy, Laddie, Master M. Stoop, Canadian Pink and Beauty of Durham. A wonderful display of Daffodils was again staged by Mr. J. C. MARTIN, of Truro, who is always surprising the trade by his wonderful new varieties. His stand included his Silver Chimes and the wonderful double white with an orange centre, known as Water Lily. Great Leap and Bosvigo Gem were also much admired by visitors.

Although Messrs. MAXWELL AND BEALE, of Broadstone, Dorset, were the only rockery firm exhibiting, they put up a very fine miniature rockery which was a source of great attraction. This included plants of Cassiope tetragona, Cytisus Beanii, Heathers in variety, Primulas in variety, Daphne Cneorum and other dwarf alpine plants. The DEVON ROSERY reminded visitors of the beauties to come by displaying some wonderful examples of Roses, Hydrangeas Clematis, etc., The exhibit of Messrs. TRESEDER contained many rare and interesting Australian and other plants, and as this firm has its nurseries actually in the Cornish Riviera it is able to produce many of these plants out of doors for its customers, whereas up-country firms would have to resort to artificial means. The exhibit included Acacias in variety, Prostanthera, Crinodendron, Pomaderris elliptica, Chorizema flava, Polygala dalmaisiana and Guevina Avallena. An educational exhibit was staged by the CORNWALL COUNTY COUNCIL.

The Truro show owes much of its success to the efforts of its secretaries, Major G. William, K. Worth, Esq., and its Chairman, Major G. H. Johnstone.

SPALDING AND DISTRICT BULB GROWERS.

THE third annual Daffodil show held at Spalding under the auspices of the Spalding Bulb Growers and Market Gardeners' Association proved a notable success. The judges were Mr. G. W. Leak, of Wisbech, and Mr. G. Shaw, of Spalding, and the first-named described the quality of the exhibits as surpassing that of any previous show judged at Spalding. There was far more variety than heretofore, whilst it was evident that Spalding growers appreciated the newer varieties. The packing of the boxes was exceptionally good, and in Mr. Leak's view could not be improved upon.

Remarkable success was achieved by Messrs. J. T. WHITE AND SON. The Gold Medal offered as the first prize in the class for any new variety was won by Mr. M. DEARNLEY, of Pinchbeck, for Merapi.

The Spalding Bulb Company's Challenge Cup offered for the best exhibit in the show was won by Messrs. J. T. WHITE AND SON, Spalding ; reserve, Mr. R. D. WELLBAND, Spalding. The former firm also won the William Hardy Cup offered for the best box of Daffodils, bunched and packed for market, and again Mr. R. D. WELLBAND was placed second. This gentleman won the Homan Cup for a collection of Daffodils, in which class Mr. O. W. D'ALCORN, Spalding, was placed second.

The Gerald da Costa Cup for a collection of Daffodils was won by Messrs. J. T. WHITE AND SON, followed by Mr. R. D. WELLBAND, and Mr. E. W. JACOB, Spalding, in this order. Messrs. J. T. WHITE AND SON also excelled in the class for six vases of Trumpet Daffodils, followed by Mr. O. W. D'ALCORN, second, and Mrs. H. BATES, Spalding, third. The best vases of short-cupped Daffodils were shown by Mr. H.

Tillman; second, Mr. O. W. D'Alcorn; third, Mr. E. W. Jacob; while the best six vases of small-cupped Daffodils were shown by Mrs. Bates; second, Mr. B. Baxter, Spalding.

Messrs. J. T. White and Son won first prize for (*a*) one box of Trumpet Daffodils (one variety) bunched and packed for market; (*b*) one box of short-cupped Daffodils; (*c*) one bunch of short-cupped Daffodils, tied for market; and (*d*) one bunch of small-cupped Daffodils, tied for market.

The best bunch of Trumpet Daffodils tied for market was shown by Messrs. H. W. White and Son. The Bert Baxter Cup offered for a collection of Daffodils, open to small growers, under three acres, was won by Mr. R. Pocklington; second, Mr. F. Baxter; third, Mr. G. H. Brown. Mr. R. D. Wellband won the Association Cup offered for the best collection of new varieties (open). and Mr. M. Dearnley, Pinchbeck, near Spalding, was placed first for a single specimen of a new variety.

GUILDFORD AND DISTRICT GARDENERS'.

The first outing of the season took place on Saturday, the 24th ult. After a showery week, the day proved to be a fine but somewhat cold one, but notwithstanding this a party that taxed the capacity of two large charabancs proceeded to Wisley Gardens. Other members travelled on cycles and in private motor cars, making altogether a creditable number for the time of year. Mr. Auton, having cycled from Pyrford, joined the party at Wisley, and later was entertained by the president, Alderman W. T. Patrick, J.P. The party was conducted round the gardens and through the houses by Mr. F. J. Chittenden, and members of his staff, all of whom by their courtesy greatly contributed to the enjoyment of the visitors. Arrangements had been made for tea at West Byfleet, but so many attended that an overflow gathering had to be accommodated in Mr. Napper's private house.

The outward journey was along the London-Portsmouth road which Nelson travelled, (in the opposite direction) on his last journey before setting sail at Portsmouth in the Victory. The homeward route was via Old Woking, and all along the road nature threw in an "extra" in the form of acres upon acres of Gorse-covered commons, flaming with gold and set amid forests of dark Pines — a very enjoyable and successful outing.

Obituary.

Adam Mann.—Mr. Adam Mann, one of the most highly esteemed members of the nursery trade in the north of Scotland, recently passed away at his residence, Broadcroft Gardens, Banff. Born eighty-two years ago, it is over sixty years since Mr. Mann went to Banff, and purchased Broadcroft Gardens, where for the most of this long period he carried on an extensive and successful business. Possessed of intimate knowledge, great skill and fine taste in all matters horticultural, Mr. Mann's advice and counsel were much sought after, and always given most ungrudgingly. It has been well said of him that at all points on which he touched the progress of affairs, Mr. Mann's fine character and example told powerfully in a beneficent direction, and so he came to be held in high honour by the local community and a very wide circle beyond. Mr. Mann was predeceased by his wife in 1906; he leaves a large family, including a number of sons who have inherited in a large degree the fine qualities and skill of their father, including Councillor T. L. Mann, seedsman and florist, Elgin, and a prominent and indefatigable member of the Elgin Horticultural Society.

Jeremiah Netherwood.—This grand old florist passed away on April 26, at Normanton. He was in his eighty-ninth year and had been a Tulip fancier and grower for sixty years. For many years he was a judge at the exhibitions at the Wakefield and North of England Tulip Society, and was booked to officiate in that capacity this year. The end came very suddenly and his loss is greatly deplored in northern florists' circles.

David Sharp.—We regret to record the death at the age of seventy-one, of a highly esteemed Scottish gardener, Mr. David Sharp, who died at The Gardens, Priorwood, Melrose, on April 28. Mr. Sharp had been for the long period of thirty-three years gardener at Priorwood to the late Mr. Alexander Curle and Dr. James Curle, LL.D., and was very highly esteemed and respected by the family, whose interests he served devotedly. Mr. Sharp was universally respected both for his character and abilities, and his death will be a serious loss to many. He was buried at Melrose Cemetery on May 1.

NEW HORTICULTURAL INVENTIONS.

These particulars of New Patents of interest to readers have been selected from the Official Journal of Patents, and are published by special permission of the Controller of H.M. Stationery Office.

Latest Patent Applications.

10,144.—Bethell, A. L., Bethell, W. E. & Scott, A. C. Scott, W. A.—Means for training plants, etc. April 17.

9,608.—Bjorkman, T. E. F.—Attachment for wheels of lawn mowers, etc. April 12.

9,854.—Bretherton, F. J.—Garden, etc., rollers. April 14.

9,561.—Freestone, J. T.—Insecticide, etc. April 12.

9,991.—Taylor, J. H.—Supports for plants, fencing wires, etc. April 16.

Specifications Published.

250,018.—Taylor, W.—Destroyer for slugs, maggots, and like garden pests.

250,057.—Drummond, A.—Power-driven lawn mowers.

249,574.—Brookman, C. J.—Means for defining the edges of garden paths and flower beds.

249,676.—Robinson, A. S. F.—Garden and road rollers.

249,301.—Dimmock, L.—Seed box or device for growing plants for transplanting purposes.

Abstract Published.

Lawn Edging Machines. *Patent No.* 247,493.

A simplified form of lawn edging machine has been protected in this country by Mr. J. Diehl, of 64, Sherman Place, Jersey City, New Jersey, U.S.A. The machine consists of a handle, a disc blade, a disc roller on each side of the blade, and an angularly adjustable weight, all mounted on a common axle. An adjustable share or scraper may be provided to remove grass growing in the paths. The disc rollers are bolted to the disc cutter and freely mounted on the axle. The weight is U-shaped and is adjustably connected to the handle fork by a curved and slotted bar and a screw. The share is carried by an arm adjustably secured by a strap and a wing nut. The disc may have a scalloped or toothed edge.

Printed copies of the full Published Specifications may be obtained from the Patent Office, 25, Southampton Buildings, W.C. 2, at the uniform price of 1s. each.

ANSWERS TO CORRESPONDENTS.

Apple Mildew.—*Mack.* The shoots are infested with Apple mildew. All mildewed shoots should be cut off and burnt. Examine the trees in winter, when mildewed shoots may be detected by their slightly whitish and dwarfed appearance. Spraying with lime-sulphur at summer strength so soon as the bloom has fallen will help to control the disease.

Black Tulips.—*C. U. D. C.* There is a race of Tulips which produces several flowers on a stem, and there are, of course, several varieties of Tulip which have black, or almost black, flowers, notably the varieties named Zulu, La Tulipe Noire, Sultan, Othello, Faust, and Leonardo da Vinci.

Gardener's Notice and Wages During Illness.—*A. E. S.* It has been held that a head gardener is entitled to a month's wages in lieu of notice. There is no fixed rule as to whether an employee can claim wages during illness whilst in receipt of sick benefit under the National Insurance Act, and there have been conflicting decisions on the point. Many employers, however, make up the sick benefit received to the amount of the value of the wages.

Names of Plants.—*G. R.* 1, Garrya elliptica; 2, Xanthoceras sorbifolia; 3, Lonicera tatarica; 4, Kerria japonica var. flore pleno; 5, K. japonica; 6, Ribes aureum *Gardener, Herts.* 1, Spiraea Thunbergi; 2, Pyrus floribunda; 3, P. floribunda var. atrosanguinea. *R. E.* Scilla hispanica; S. h. rosea; S. h. alba. *A. B., Rutland.* 1, Epimedium alpinum; 2, Bilbergia nutans. *P. G.* 1, Viburnum Tinus var. hirtum; 2, Milla uniflora. *E. M. B.* Rhododendron ciliatum. *J. B. P.* 1 and 2, seedling Saxifrages; 3, Phlox subulata; 4, Phlox divaricata; 5 and 6, seedling Aubrietias; 7, Androsace sarmentosa; 8, Doronicum Pardalianches. *L. S.* We do not undertake to name seedlings of such plants as Aubrietias and Violas.

Salpiglossis.—*H. S., Oxon.* The Salpiglossis may be treated as a hardy annual, sowing the seeds out-of-doors about the middle of April. To obtain large plants for flowering during July, the seeds should be sown in a cool house or frame during March. For your purpose the middle of March would be the most suitable time, sowing the seeds thinly in shallow boxes or pans. When large enough to handle prick out the seedlings singly into thumb pots, or you may transplant them in boxes, afterwards potting them when large enough. They will grow freely in any good potting compost, but they are by no means easy subjects to cultivate successfully in pots, and require very careful handling when being pricked off or repotted. They also require very careful attention as regards watering, as they are very subject to damping off, especially during their younger stages. The plants should be grown in perfectly cool conditions at all times, and should be placed near the roof-glass. Potted on into large sixty-sized pots they should make good specimens for placing in their flowering positions during the first week of May. The seedlings are usually allowed to run up without stopping, but to obtain bushy specimens pinch out the tips of the young plants when the latter are about three inches high. This will result in a number of shoots developing from the base of the plant; if this method is adopted it is necessary to sow several weeks earlier. You can also have the plants ready to put out, in flower, towards the end of May by sowing the seeds the previous August, and growing them on through the winter in a cool, airy greenhouse, or in a cold frame.

Communications Received.—M. M.—A. T. H.—F. Ar S.—Hortus.—P. W.—C. C.—H. C.—W. A.—M. E. M.—F. C. P.—S. F. R.—F. C. H.—J. B. P.—A. B. W.—E.B.—A. B.—J. D. C.

MARKETS.

COVENT GARDEN, Tuesday, May 4, 1926.

Plants in Pots, etc.: Average Wholesale Prices.

(All 48's except where otherwise stated).

	s. d. s. d.
Adiantum cuneatum per doz. ...	12 0-15 0
—elegans ...	12 0-15 0
Aralia Sieboldii	9 0-10 0
Araucarias, per doz.	30 0-42 0
Asparagus plumosus	12 0-18 0
—Sprengeri ...	12 0-18 0
Aspidistra, green	36 0-60 0
Asplenium, per doz.	12 0-18 0
—32's	24 0-30 0
—nidus	12 0-15 0
Azaleas, '48's, each	4 0—6 0
Boronia megastigma, 48's, per doz.	30 0-36 0
Cacti, per tray —12's, 15's ...	5 0- 7 0
Cinerarias, 48's, per doz. ...	18 0-21 0
Crotons, per doz.	30 0-45 0
Cyclamens, 48's in variety, per doz.	24 0-30 0

	s. d. s. d.
Cyrtomium ...	10 0-25 0
Daffodils, 48's, per doz. ...	18 0 21 0
Genistas, 48's, per doz. ...	24 0-27 0
Hyacinths, large white, 48's, per doz.	21 0 24 0
Hydrangeas, pink, 48's, per doz....	24 0-30 0
—white, 48's, per doz.	24 0-27 0
—blue, 48's, per doz.	24 0-36 0
Marguerites, 48's per doz. ...	18 0-21 0
Nephrolepis in variety ...	12 0-18 0
—32's	24 0-36 0
Palms, Kentia	30 0-48 0
—60's	15 0-18 0
Pteris, in variety	10 0-15 0
—large, 60's ...	5 0- 6 0
—small	4 0- 5 0
—72's per tray of 15's	2 6- 3 0

Cut Flowers, etc.: Average Wholesale Prices.

	s. d. s. d.
Adiantum decorum, doz.bun.	10 0-12 0
cuneatum, per doz. bun. ...	8 0-10 0
Arums (Richardias) per doz.	5 0—6 0
Asparagus plumosus, per bun., long trails, 6's,	2 0- 3 0
med. sprays	1 6- 2 6
short	0 9- 1 3
—Sprengeri, bun long sprays...	1 6- 2 0
med. „ ...	1 0- 1 6
short „ ...	0 4- 1 0
Carnations, per doz. blooms	3 6—5 0
Croton leaves per doz. ...	1 9- 2 6
Fern, French, per doz. bun.	10 0-12 0
Forget-me-not, per doz. bun.	6 0- 8 0
French Flowers—	
Anemones, St. Brigid, per doz. bun. ...	3 0—4 6
—double red, per doz. bun.	6 0—7 0
—Parma Violets, per bun. ...	3 6—4 0
—Ranunculus, scarlet, per doz. bun. ...	4 0—5 0
Gardenias, 12's, 18's, per box	4 0—5 0
Gypsophila ...	4 0—6 0
Heather, white, per doz. bun.	10 0-12 0
pink, per doz. bun.	9 0-12 0
Iceland Poppies, per doz. bun.	6 0—7 0
Iris blue, per doz. blooms ...	1 6—2 6
—mauve, per doz. bun. ...	15 0-18 0
—white, per doz. bun.	24 0-30 0
—yellow... ...	30 0-36 0
Ixias, red ...	3 0—4 0
—mixed... ...	3 0—4 0

	s. d. s. d.
Lilac, white, per doz. sprays...	6 0—7 0
Lilium longiflorum long, per doz.	4 0—5 0
—speciosum rubrum, long, per doz. blooms ...	3 6—4 0
—short, doz. blooms ...	2 6—3 6
Lily-of-the Valley, per doz. bun.	24 0-36 0
Narcissus poeticus, per doz. bun.	3 0—4 0
Orchids, per doz.	
—Cattleyas ...	24 0-30 0
—Cypripediums	5 0—7 0
Roses, per doz. blooms—	
—Madame Abel Chatenay ...	3 6—4 6
—Molly Sharman Crawford	3 6—4 6
—Richmond ...	3 0—4 0
—Columbia ...	3 0—5 0
—Golden Ophelia	3 0—4 6
—Sunburst ...	3 0—4 6
—Mrs. Aaron Ward	2 6—3 0
—Madame Butterfly	4 0—5 0
Statice sinuata per doz. bun.	5 0—6 0
Smilax, per doz. trails	8 0—9 0
Stephanotis per 72 pips... ...	3 0—3 6
Stock, double white, per doz. bun.	15 0-24 0
Sweet Peas, per doz. bun. ...	12 0-18 0
Tulips—	
—Darwins, per doz. bun. ...	9 0-15 0
—Clara Butt ...	9 0-12 0
—W. Copland...	9 0 12 0
—Farncombe Sanders ...	9 0-12 0
Violas	3 0—4 0

REMARKS.—In this department out-door Tulips and Irises have been the largest supplies from home-growers. Small white blooms are particularly scarce and high prices have been realised for double white Stocks, white Pelargoniums and cut white Hydrangeas. Narcissus poeticus is gradually lowering in price owing to the increased supplies from all quarters. Small consignments of Gladiolus Blushing Bride and G. Peach Blossom are arriving in good condition. Carnations and Roses are again more plentiful and prices are on the down grade. Richardias (Arums) are getting scarce, and L. longiflorum appears to be sufficient for present requirements. Sweet Peas are improving in quality and becoming more plentiful; Lily-of-the-Valley is again more plentiful. Gardenias, Stephanotis and Iceland Poppies are meeting with a good demand.

Vegetables: Average Wholesale Prices.

	s. d. s. d.
Artichokes, green per doz. ...	2 0—3 0
Asparagus, English—	
—Evesham ...	2 0—6 0
—Devon ...	6 0—8 0
—Cambridge ...	1 0—2 0
Asparagus—	
—Cavaillon ...	1 3—1 6
—Lauris ...	1 6—3 0
Beans—	
—Madeira, per basket	4 0—4 6
Boxes	5 0—6 0
—Guernsey and Worthing forced...	1 6—2 0
Beets, per cwt.	7 6—9 0
Broad Beans per crate... ...	3 0—4 0
Cabbage, per doz.	2 0—3 0
Cauliflowers, per doz.	4 0—7 6
New Carrots, per doz. bundles ...	6 0-10 0
Chicory, Belgian, per lb	0 6—0 8
Cucumbers, per doz.	4 0—4 6
—Flats	12 0-16 0
Endive, per doz.	1 6—3 0
Horseradish, per bundle ...	1 6—2 0
Lettuce, round, per doz. ...	1 0—2 0
—long, per doz.	5 0—7 6
—Dutch, per crate... ...	3 0—5 0
Marrows, Forced per doz. ...	8 0-15 0
Mint, forced ...	2 0—4 0
Mushrooms, —French ...	1 6—2 0
Mushrooms,	
—cups	2 0—3 0
—Broiler ...	1 6—2 0

	s. d. s. d.
Onions—	
—Egyptian ...	10 0-10 6
Parsnips, per cwt.	5 0—6 0
Peas, Forced ...	1 0—1 6
Peas, French crate	3 0—5 0
Potatos—	
—Dunbar ...	7 6—8 0
—King Edward, per cwt. ...	5 6—7 6
—others	3 6—5 0
New Potatos—	
—Spanish, per cwt.	20 0-22 0
—Algerian per cwt.	12 0-15 0
—Azores, per case	10 6-16 0
—Canary Island	10 0-15 0
—Guernsey ...	0 4—0 5
—Scilly, per lb.	0 3½-0 4
Rhubarb, forced, per doz. bundles	1 3—1 6
—outdoor, per doz.	6 0—9 0
Spinach, per bushel ...	4 0—5 0
Spring Greens, per bag ...	2 6—3 6
Tomatos, Canary Islands Best	20 0-26 0
—English, pink, per lb. ...	1 6—2 0
—pink and white, per lb. ...	— 2 0
—blue, per lb. ...	— 1 6
—white, per lb.	— 1 6
—Guernsey, per lb.	1 9—2 0
Turnips, per cwt.	5 0—7 0
—new, per doz. bunches ...	8 0-10 0
Turnip Tops, per bag ...	3 6—4 0

Fruit: Average Wholesale Prices.

	s. d s. d.
Apples, Cooking—	
—Bramley's Seedling ...	10 0-14 0
Apples, American	
—Albermarles brl.	35 0-36 0
—Oregon Newtown ...	13 0-15 0
—Winesap ...	8 0-10 0
Apples, New Zealand—	
—Cleo	12 0-15 0
—Cox's	12 0 18 0
—Dunn's ...	12 0-13 0
—Jonathan ...	12 0-13 0
Apples, Tasmanian—	
—Cox's	12 0-16 0
—Cleo	12 0-18 0
—Ribston Pippin	9 0-11 0
—others	9 0-10 0
Apples, Victorian	
—Dunn's Seedling	10 0-12 0
—London Pippin	10 0-11 0
—Jonathan ...	12 0-13 0
Bananas	12 0-22 6
French Cherries, crate	6 0-12 0
Figs, forced, doz.	6 0-18 0

	s. d. s. d.
Gooseberries, per lb.	0 8-0 10
Grapes, Belgian—	
—Gros Colmar	3 0—5 0
Grape Fruit ...	35 0-50 0
Lemons, Messina, per box ...	10 0-11 6
—Naples, box...	15 0-20 0
Melons, each ...	5 0-10 0
Oranges—	
—Californian ...	30 0-32 0
—Denia	12 0-35 0
—Murcia ...	12 0-35 0
Peaches, Belgian, per doz. ...	10 0-24 0
Pines	2 0—4 0
South African fruits—	
—Nelis	4 6—6 0
—Comice ...	7 0-10 0
Australian grapes ...	20 0-25 0
Australian pear—	
—Beurré Bosc, per tray ...	6 0—7 0
South African Grapes ...	6 0-10 0
Strawberries, per lb.	4 0-10 0

REMARKS.—During the past week produce has been plentiful and a fair demand has ruled all round. At the time of writing brisk business is being done in essential commodities, but in other sections the outlook is not good owing to the absence of provincial demand. With a satisfactory organisation of road transport, the market conditions, if the strike continues, should be fairly normal.

GLASGOW.

Outdoor Tulips and Daffodils are at present dominating the cut flower market, and the tone generally was firmer, especially on Friday, when the highest values of the week were obtained; prices remain low. Locally-grown Clara Butt made 4d. to 10d. doz.; Princess Elizabeth, 6d. to 10d.; Farncombe Sanders, 5d. to 1/-; William Copland and Pride of Haarlem, 4d. to 8d. English blooms sold at 6d. to 1/-; Guernseys at 4d. to 8d.; and special, 1/- to 1/4. Daffodils Emperor, Barrii conspicuus, Glory of Lisse and Grandee were worth from 2/6 to 4/6 per dozen, but a small consignment of the latter variety from Lochanhead brought 8/-. Pheasant Eye sold at 4/6 to 6/-; specials, 8/-; ornatus at 2/- to 4/-; and special at 4/- to 6/-. Carnations were scarce and at 4/- to 8/- per dozen, prices practically doubled those of the previous week. Hundreds of boxes of Guernsey Irises arrived daily. These consisted chiefly of King of the Blues and Imperator, which averaged from 8d. to 1/2 per dozen in the case of the former, and 1/8 to 2/6 for the latter. English blooms ranged from 1/6 to 2/-. Sweet Peas kept steady at 9d. to 1/- per bunch; Roses realised 5/- to 6/- per dozen; Lily-of-the-Valley (outdoor), 6d. to 1/-. Richardia, 3/- to 8/-; Lilium longiflorum (Harrissii), 3/6 to 5/-; Anemones, 6/- to 8/-; White Lilac, 5/- to 6/- per dozen sprays; Smilax, 2/- to 2/6; Asparagus 4d. to 2/6.

Bedding-out plants were in plentiful supply. Marguerites in pots made 15/- to 18/- per dozen, and Geraniums, 6/- to 7/-; while Sweet Peas were slow to move at 4d. to 6d. per dozen. Stocks, Asters, Auriculas, Violas, etc. were sold at 1/- to 1/3 per box. Tomato plants, 1/- to 1/6 per doz.

In the fruit market there was little movement one way or the other. First consignments of Australian Apples sold at 8/- to 16/- per case, and American-grown Apples were just steady at last week's quotations. Oranges were dearer, Valencia 240's being worth from 16/- to 24/-; 360's and 504's, 12/- to 16/-; and 420's, 26/- to 42/-; Murcia 300's advanced to 24/- to 30/-; 240's, 26/- to 32/-; 360's, 20/- to 25/-; and 420's, 28/- to 36/-. A good business was done in South African Pears and Grapes at former values. Scotch Strawberries were 14/- per lb.

A feature of the vegetable market was the further advance in forced Rhubarb to 20/- per cwt, while the Polmont product was as high as 40/-. Outdoor Rhubarb averaged about 6/-. Lettuces were dearer at 4/- to 6/- per crate. Round Radishes ranged from 1/6 to 2/-; long, at 9d. to 1/-; Guernsey Tomatos sold for 1/9 to 2/- per lb. Asparagus was worth 1/6 to 1/9 per bunch; Mushrooms, 2/- to 2/6 per lb.; English Cucumbers, 6/- to 7/- per dozen; Dutch Cucumbers, 5/- per dozen. Other prices were: French Beans 1/4 to 1/6; Carrots, 8d. to 10d.; Turnips, 10d. to 1/-; and Syboes, 4/- to 5/- per dozen bunches.

THE LATEST TRADE MARKS.

THIS list of Trade Marks of interest to readers has been selected from the Official Trade Marks Journal, and is published by permission of the Controller of H.M. Stationery Office.

APEX.

467,045.—Fertilisers.—J. C. Whitney & Co., Eldon Street House, Eldon Street, London, E.C.2. March 31.

SPERKIT.

467,229.—Mixed Cultures of Cellulose-fermenting Organisms used for Agricultural and Horticultural purposes.—Fakaltorf Studien Gesellschaft Mit Beschrankter Haftung, 94, Schnorrstrasse, Dresden, Germany. April 14.

467,379.—Device bearing word HAL-ETZ-OWN for Insect Destroying Preparations particularly for white fly.—A. R. Hallett, 433, Stoney Stanton Road, Coventry. April 7.

CATALOGUES RECEIVED.

G. BECKWITH AND SON, The Nurseries, Hoddesdon, Herts.—Pot plants and budding eyes of new Roses. (Wholesale).

SALE AND SON (WOKINGHAM), LTD., Wokingham.—Garden plants.

BARR AND SONS, 11, King Street, Covent Garden, W.C.—Bedding plants and Dahlias.

Foreign.

H. DEN OUDEN AND SONS, The Old Farm Nurseries, Boskoop, Holland.—Trees and shrubs, plants, etc.

ERNST BENARY, Erfurt, Germany.—Seeds. (Wholesale.)

CALIFORNIA NURSERY COMPANY, Niles, California.—Trees and shrubs, etc., budwood, scions and cuttings. (Wholesale).

SCHEDULES RECEIVED.

HEMEL HEMPSTEAD AND DISTRICT HORTICULTURAL SOCIETY.—Exhibition to be held in the Bury Meadow on Saturday, August 14.—Secretary, Mr. E. Edwards Bargrove Gardens, Boxmoor.

WEYMOUTH AND DISTRICT CHRYSANTHEMUM SOCIETY.—Thirteenth exhibition to be held in the Sidney Hall, Weymouth, on Tuesday and Wednesday, October 26 and 27.—Secretary, Mr. C. J. Bowers, 4, Wooperton Terrace, Weymouth.

SOUTHPORT FLOWER SHOW.—Third annual exhibition to be held in the Victoria Park, Rotten Row, Southport, on Wednesday, Thursday and Friday, August 25, 26 and 27.—Secretary, Mr. T. E. Wolstenholme, Town Hall, Southport.

TRADE NOTE.

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THE
Gardeners' Chronicle

No. 2055.—SATURDAY, MAY 15, 1926.

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Average Mean Temperature for the ensuing week deduced from observations during the last fifty years at Greenwich, 53·9.

Silver Leaf. It is a cause of satisfaction to be able to record that the initiative shown by the Ministry of Agriculture and the Development Commission in providing facilities for an intensive and continuous investigation of Silver Leaf disease is leading to results of great scientific and economic importance. The results of recent investigations now published* by the authors, Messrs. F. T. Brooks and W. C. Moore, show that the fungus, Stereum purpureum, responsible for Silver Leaf, although most destructive when growing on the Plum, is also capable of exercising disastrous effects on other plants. It is recorded, for instance, that Stereum purpureum may cause the death of Rhododendrons and it is now known that it may attack and destroy Roses and, in particular, Rambler Roses. Apples, of course, have long been known to be subject to attack by Silver Leaf and it is therefore the more curious to find that the disease is extremely rare on Pears. Of direct importance to Plum growers is the fact—new to us—that the Purple Egg Plum is among the varieties which have proved resistant to Silver Leaf. Of Plum stocks, Myrobalan B appears to be most resistant and quite a large number, including Bastard Common Mussel, is only moderately susceptible to attack by the fungus. Moreover, although it is possible to infect these susceptible stocks with Silver Leaf, the infection is but transitory. Whence it follows that it is the scion and not the stock which is the source of danger; such highly susceptible varieties as Victoria and Czar are certainly more prone to acquire the disease directly than from the stock on which they grow. From numerous experiments made by Messrs. Brooks and Moore, the important conclusion emerges that there is a close time for the infection of wounds by the spores of Stereum purpureum. In any month of the year except June, July and August inoculation of the surface tissues exposed by a fresh wound may lead to infection, but in the summer months the Plum appears to possess a means of resisting infection and the authors suggest that this result is brought about by the formation of a gum barrier by the wound tissue. They show, further, that after about a month at any time of the year a wound ceases to be a danger point, inoculation of a wound of more than a month old failing to result in infection. The grower therefore who has Silver Leaf in his plantations and who must, perforce, cut out diseased wood, knows that the right time to put the work in hand is in the early part of the summer. If experience shows that it is attended by no ill consequences it should also prove to be good practice to do any thinning of Plums—such for example as is usually left till winter—in the early summer; from what has been stated already each wound if made at other times of the year is a possible place of inoculation. The power of the Plum to exude gum whenever it is either injured or unhealthy appears, from the observation of the authors, to be a beneficient one so far as the plant is concerned. For they have observed what has often been stated by growers, that silvered Plums may recover and they attribute the recovery to the formation in the tree of gum barriers which effectually stop the further progress of the fungus. Failing to spread as the old and highly infected branches die off and are removed, the fungus is cast off also and the tree resumes a healthy life. It follows therefore that this recovery may be helped by surgical means and the authors recommend that those whose trees are silvered should endeavour by removing the upper infected and dying branches, to promote the growth of branches lower down which will, at all events, often prove free from the fungus. Even the very susceptible Czar and Victoria need not be given up as hopeless; by drastic surgical methods applied at the proper season they may be brought back to health. Needless to say the better the cultivation the better the chance of recovery, for good cultivation means vigour of the tree and vigour means the power to produce fresh shoots in place of those removed by the fungus and the tree-surgeon's knife. Dressings of basic slag and kainit are sometimes beneficial to the health of the trees and they serve indirectly as aids in ridding them of the parasite. Finally, the authors have tested various materials used for dressing wounds. They dismiss gas tar and Stockholm tar as of doubtful value and recommend in their place either soft grafting wax or certain paints; of the latter a "home made" preparation is advised, composed of 2 lbs. white lead paste (as bought), two teaspoonfuls of paste driers and two tablespoonfuls of linseed oil all mixed together; to this mixture is added two tablespoonfuls of turpentine, and after a further thorough mixing, the paint is ready for use. The present position with respect to Silver Leaf disease is therefore encouraging. By cutting out silvered branches at the right season of the year and by treating wounds which are made at other seasons with a suitable dressing, the disease may be prevented from spreading; by cutting out dead and diseased wood, attending to cultivation and encouraging the growth of lower branches, a diseased tree may be helped to cure itself!

Chelsea Show.—Under the conditions prevailing, the Chelsea Show could not have been a success if held on the dates originally fixed. We are glad to learn, therefore, that the Council of the Royal Horticultural Society has decided to postpone the show and, provided the prospects are favourable, this great annual horticultural function will take place on Tuesday, Wednesday and Thursday, May 25, 26 and 27. The tickets issued for May 18, 19 and 20 will be available for the new dates.

Kew Guild.—The Kew Guild Annual Meeting and Dinner originally fixed to be held on Wednesday, May 26, at Hammersmith, have been postponed indefinitely.

National Carnation and Picotee Society.—The National Carnation and Picotee Society has arranged to hold two shows again this year, one in the Royal Horticultural Society's Hall on Tuesday, July 13, in connection with the R.H.S. fortnightly meeting on that date, the other in the Carpenters' Hall, Throgmorton Avenue, E.C. 2, by kind permission of the Worshipful Company of Carpenters, on Wednesday, July 21. It is announced that the show on July 13 will be on a somewhat smaller scale than in previous years owing to the limited space available. The schedules of both shows are issued and may be obtained from the Hon. Secretary, Mr. Ernest G. Lowe, 65, Exeter Road, Cricklewood, N.W. According to the forty-seventh annual report of the Society, a considerable number of new members joined the Society during the past year and the membership now stands at 114. The balance sheet shows a total income for 1925 of £168 15s. 4d., and expenditure of £145 16s. 4d., leaving a balance in hand of £22 19s., including subscriptions paid in advance, amounting to £4 5s. 6d.

A New, American-raised Carnation. — The *Florists' Exchange* gives an account of a seedling Carnation named Jewel, raised by Mr. William Sim, of Cliftondale, Massachusetts. The colour is said to be flesh-pink; the bloom is of medium size, possesses a good calyx and is developed on an excellent, stiff stem. The flowers are said to keep remarkably well and "ship long distances." Mr. Sims has rooted a million cuttings, of which the variety is said to produce an abundance.

Brighton Horticultural Society's Outings.—The Brighton and Hove Horticultural Society has arranged several interesting outings for the present session on behalf of its members. The first will be to Lady Loder's garden at Leonardslee, Horsham, on Thursday, May 20, and the party will return from Leonardslee via Balcombe forest, Cuckfield and Hurstpierpoint. On Wednesday, June 9, the visit will be to Mr. F. J. Hanbury's garden at Brockhurst, East Grinstead. Windsor will be visited on Wednesday, July 21, and on Wednesday, September 8, members will visit the Nurseries, Uckfield. Tickets for May 20 are 7/6; June 9, 8/-; July 21, 16/6; and September 8, 7/6. These prices include fare, tea and gratuities, and in the case of the Windsor visit, lunch will also be provided.

Introduction of the Tulip to Western Europe.—In the issue for May 8 of our Belgian contemporary, *La Tribune Horticole*, an interesting article appears on the subject of the date of introduction into western Europe of the garden Tulip. By some it is stated that the first to describe Tulips in this part of Europe was a German, Conrad Gesner, who had seen them at Augsburg, others state that they were first cultivated by Charles de l'Escluse in the Netherlands, but the writer of the article in question reminds his readers that in 1555—four years earlier than the date of Gesner's description—a Belgian, Ange-Ghislain de Busbecq by name, being sent on a diplomatic mission to Hungary, saw and admired the Tulips on the plains and bought some bulbs, which he sent to Charles de l'Escluse. Incidentally, it was also Busbecq who sent to Belgium the first specimens of Lilac, named by one naturalist Busbecquia, in his honour; fortunately, however, a shorter and simpler name won the day.

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* *The Journal of Pomology and Horticultural Science.* V. 2. March 1926.

Three New American Strawberries.—We learn from the American press that three new Strawberries have been obtained at the Agricultural Experiment Station at Geneva, New York State. The names of the new varieties are the Beacon, Bliss, and Bouquet. The Beacon is an early variety, Bouquet somewhat later, while Bliss is considered to be a good mid-season variety.

Dahlias in the London Parks.—Judging from the planting done during this week Dahlias are likely to be as extensive and popular a feature of decorative gardening in the London Parks in 1926 as in 1925. On Thursday and Friday, May 13 and 14, a large belt of Dahlias was planted in the Embankment Gardens, between Charing Cross Station and Waterloo Bridge, and planting was followed by the application of a liberal mulching of old manure.

Flower Show at Valenciennes.—A flower show is to be held at Valenciennes, in the north of France, between June 26 and July 4. The event is being arranged by the Société d'Horticulture du Nord, to celebrate its fiftieth anniversary, and is under the patronage of the French President, the Minister of Agriculture having promised to preside. The occasion being a special one, some fine prizes are being offered, including Sèvres vases from the President of the Republic and the Minister of Public Instruction. The local railway is carrying all the exhibits of plants and flowers to and from the exhibition free of charge, which will enable many small growers to compete who otherwise might be deterred by the expense. A Rose Congress and a Pomological Congress are to be held in connection with the Exhibition on June 25 and 26 respectively.

Longevity of Alfalfa Seed.—The Chicago *Seed World* for April 23, 1926, states that on the 16th of March of this year, the Montana Grain Inspection Laboratory received the following letter and accompanying sample of Alfalfa seed:—"Dear Sir, I send you under another cover a sample of Alfalfa seed, bought in 1917, on which I would like germination report. I will use it this spring if it is advisable to sow. Yours truly,—." The sample germinated ninety-three per cent., with two per cent. hard seed. The bulk from which the sample was taken had been stored in sacks in the farmer's granary for nine years, and although it lacked the bright, clear lustre of new seed, it had certainly retained its viability. However, it is not advisable to sow old seed of any kind without first making a germination test.

The Saffron Industry in Spain.—Although Saffron has lost its original importance as a dye-producing plant, it is still widely used in medicine, in the making of pastry and liquors, the manufacture of soup paste and as seasoning. An interesting article on the subject by Mr. Ricardo de Escauriaza in the *International Review of the Science and Practice of Agriculture*, January-March, 1926, shows that the value of the annual output of Saffron in Spain amounts to 37,649,224 pesetas. The principal cultivators of Saffron are not generally farmers, but working men of all kinds who tend the crop after their daily work and on Sundays and feast days. The plants are usually grown on the same soil for four years, and the corms are then dug up and replanted. A light, but not rich soil is needed, and lime is also beneficial to the crop; in the Albacete province, where the best Saffron is grown, the soil contains more than forty per cent. of lime. Planting is done from the middle of May to the beginning of June, and the harvest commences at the middle or end of November. The stigmas, tubers and leaves have all an economic value, the leaves being cut and dried in the sun as winter food for live stock. The gathering of the flowers takes place from the end of October to the middle of November and is done by women and children, who go to the plantations before daylight and work until about 10 a.m. in order that the flowers may not be withered by hot sunshine. The flowers are brought indoors and the stigmas gathered by women and placed in a small earthen pot; eighty kilogrammes of flowers are required to obtain one kilogramme of green or fresh Saffron. The green Saffron is dried by heating, and afterwards allowed to cool in a dry place when it is packed in woollen material.

Major E. G. Monro.—Major E. G. Monro, Chairman of Messrs. George Monro, Ltd., Covent Garden, was appointed liaison officer of the Board of Trade's Fruit and Vegetable Section for the period of the recent transport troubles; he was also a member of the London Haulage Committee in connection with the distribution of fruits and vegetables. His brother, Mr. George Monro, a member of the R.H.S. Council, served as Commandant of the Transport Department of the Headquarters Staff of the Metropolitan Special Constabulary, at Scotland House, and Mr. Donald Monro, Mr. G. Monro's son, as an Inspector in the same division.

MAJOR E. G. MONRO.

Belgian Horticultural Society Finance.—At the annual general meeting of the Federation of Belgian Horticultural Societies, held at Brussels on April 11, it was stated that the balance sheet of the Federation showed a loss, chiefly occasioned by the expenses incurred in publishing the *Tribune Horticole* and other journals.

Programme of French Congress.—The programme of the Fédération Horticole Professionelle Internationale is now published, and it would appear that the delegates will have a busy time in Paris from May 27 to June 3. With their well-known hospitality and kindness, the French friends have prepared a round of entertainments and festivities to take place by way of relief from the more serious proceedings. On the first day, the Congress will be formally opened at 9 a.m., under the presidency of the Minister of Agriculture. At 12.30, at the Palais d'Orsay, there will be a festive déjeuner, to which all foreign delegates and their wives will be invited. At 3 p.m., the Congress will continue, and at 5.30, at the Hotel de Ville, the delegates will be received in state by the President of the Municipality, and the Prefects of the Seine and of the Police. At half past eight, a gala performance will take place at the Municipal "Gaiety Theatre," to which cards of invitation will be freely given. Without describing each day's doings in detail, it may be said that all will be equally interesting, the subsequent activities including the opening ceremony of the summer Horticultural Exhibition, excursions to all the places round Paris likely to be of most interest to the delegates, and visits to Orleans, Angers and Ussy.

The Fairchild Lecture.—The Master and Wardens of The Worshipful Company of Gardeners, being desirous of continuing the Company's historical connection with Thomas Fairchild's Lecture, which is delivered annually at Shoreditch Parish Church, have made arrangements for the attendance of the Company in state to hear the lecture delivered by the Reverend Claude Jenkins, D.D., F.S.A., Professor of Ecclesiastical History in King's College, London, on Wednesday, the 26th May instant, at 5.30 p.m. Invitations are being sent to the Ministry of Agriculture, the Royal Society, the Worshipful Company of Clothworkers, the Royal Horticultural Society, the Royal Botanic Society of London, and the Shoreditch Borough Council. Those attending are asked to assemble in the Church Room, adjoining Shoreditch Church, at 5.15 p.m., where they will be met by the Vicar, the Rev. F. E. Birch, M.A., and enter the church in procession. Prior to the assembly, the Master (W. T. Roberts, Esq.) in the name of the Company, will deposit a garland of Bay on Thomas Fairchild's tomb in the public recreation ground on the west side of Hackney Road.

The Film and Gardening in U.S.A.—The National Garden Bureau in Chicago has prepared three instructive cinematograph films on home gardening, which are lent out free of charge. There is no doubt that a great deal of useful instruction may be given in this way, and the method would be very serviceable in remote parts unserved by any horticultural instructor. It might be worth the while of county horticultural authorities in this country to consider the advisability of adopting similar methods.

Appointments for the Ensuing Week.—Monday, May 17: Romsey and District Gardeners' Association's outing. Tuesday, May 18: Winchester Gardeners' Association's meeting. Friday, May 21: British Mycological Society's Spring Foray at Arundel (five days); Association of Economic Biologist's meeting. Saturday, May 22: Wakefield and North of England Tulip Society's show (four days).

"Gardeners' Chronicle" Seventy-five Years Ago:—*Iris Susiana* (*Death's-Head Iris*).—How rarely this is well-grown in this country, and not often flowered. I saw a few days since, in the gardens of the Luxembourg, at Paris, large patches of it grown in a cold frame; there were ten or twelve flowers (half as large again as any I ever saw in this country) open at the same time; the plants appeared to be growing in very light soil. I shall try this mode of cultivating this interesting plant, and recommend your readers to do the same. The roots are to be bought with the other Dutch roots in the autumn; but I suspect that those usually purchased have been too long out of the ground, or have been taken up too early; and that this is probably the reason they do not often succeed. *Dodman, Gard. Chron., May* 17, 1851.

Publications Received.—*The Study of Vegetation*, by E. Pickworth Farrow. Published on behalf of the Blakeney Laboratory by Blackie and Son, Ltd., 50, Old Bailey, E.C. Price 2/-. *The Nervous Mechanism of Plants*, by Sir Jagadis Chunder Bose. Longmans, Green and Co., 39, Paternoster Row, E.C. 4. Price 16/- net.

PLANTS NEW OR NOTEWORTHY.

CEREUS STRAUSII.

This handsome Cactus (Fig. 176) belongs to a section of the genus generally known as Pilocereus or "Old Man Cactus," of which C. senilis is perhaps the best known species. The popular name is derived from the numerous, long, silvery-white hairs which cover the upper portion of the stem, and which have a peculiar resemblance to the white-haired head of an aged man.

C. Strausii was first described by Hesse in *Gartenflora* in 1907, where it is figured as Pilocereus Strausii. In their book *The Cactaceae*, Doctors Britton and Rose give C. Strausii as a synonym of C. Celsianus, but they state that a re-study of C. Strausii may show that it is specifically distinct.

Although closely allied species, there are undoubtedly, sufficient differences to regard the two as distinct. Both have erect, cylindrical stems, but C. Strausii has more ribs on the stem, and much shorter spines and hairs. I am unable to state whether the flowers differ either in structure or colour, as members of this section of the genus very rarely, if ever, bloom under cultivation.

C. Strausii is a native of southern Peru and northern Chili, where it occurs as a bush from three feet to four feet high. Grown in a pot, this plant should be placed in a sunny position in a house where a minimum temperature of 50° is maintained. It is sometimes grafted on the stems of other columnar species of Cereus which have a more robust habit of growth. *T. W. T.*

NEW SPECIES OF NEW ZEALAND PLANTS.

Dr. L. Cockayne and Dr. H. H. Allan have described a number of new species of New Zealand plants in the *Transactions of the New Zealand Institute*, and in sending us a reprint of the fourth series of new plants, Dr. Cockayne informs us that the five described below are of first-class horticultural value. He also points out the use of the generic title of Hebe for the shrubby section of Veronica (confined to New Zealand, Falkland Islands, Tierra del Fuegia. and south-west Patagonia) may prove of interest to British botanists and horticulturists:—

EPILOBIUM PERNITENS.

A prostrate plant having an affinity with E. pedunculare. The flowers are carried on a peduncle five cm. long, which is slender and of rosy-brown colour. The oblong-lanceolate calyx lobes are pale green and the petals are white. This beautiful little species is said to be distinguished from E. nummularifolium, E. pedunculare and E. nerterioides by its glossy, convex, small, rotund or subrotund leaves, and its comparatively large flowers. The authors recommend it as suitable for cultivation in the rock garden, as its small patches of glistening foliage and its large white flowers are suggestive of Linnaea borealis. Although seedlings from self-sown seeds are numerous, the plant is not likely to become a garden weed.

GAYA ALLANII

A shrubby plant about 4·5 m. tall, bearing leaves that in their mature condition are smaller and rather differently shaped to those of the other two members of the genus. The flowers are also smaller, three to five together The campanulate, five-lobed calyx is densely pubescent, and the obliquely-obovate petals are densely pubescent beneath and glabrous above. Superficially, the plant bears a close resemblance to Hoheria sexstylosa, and according to the authors it will some day become a famous garden plant and take its place with the well-known Mountain Ribbonwood, Gaya Lyallii. Dr. Cockayne states that this species is easily raised from seeds, and probably also from cuttings. In New Zealand the species flowers in January, and was found by Dr. Allan in the Eastern Botanical District of the South Island on the margins of Peel Forest.

HEBE ALLANII.

The genus Hebe differs from Veronica in that its capsule dehisces septicidally, the thick septum splitting and each carpel opening distally by a median slit through the septal wall. The leaves are always opposite and, after falling, leave more or less conspicuous scars. The flowers are usually in axillary racemes, and these may be greatly reduced, spicate or corymbose. All are evergreen shrubs, or in a few cases, trees. Even so conservative a botanist as the late Mr. T. F. Cheesman considered that the establishment of the genus Hebe was a correct procedure.

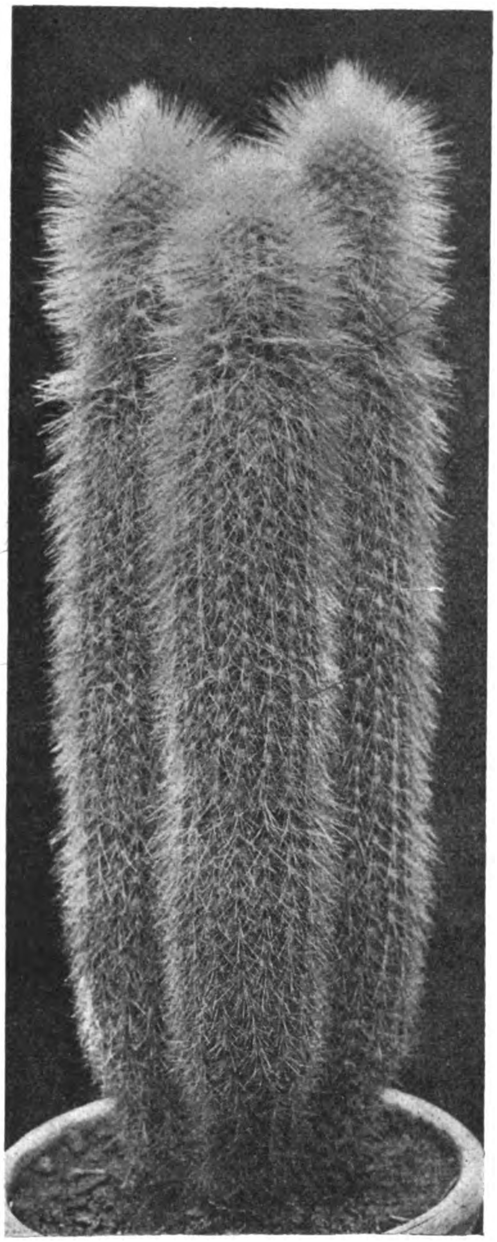
FIG. 176.—CEREUS STRAUSII.

(Grafted on Cereus spachianus.)

Hebe Allanii is about 30 cm. tall and has small, sessile foliage. The spikes carry so many as twenty-five short flowers which are sessile and have a white corolla and a pale green, pubescent calyx. This species was found on rocky outcrops in tussock grassland of about 360 m. alt., on Mount Peel, by Dr. Allan. The species comes nearest to H. amplexicaulis, but differs in its shorter branches and leaves that are closely covered with hairs on both surfaces and possess ciliate margins. It also has smaller, prostrate inflorescences and smaller flowers, which are hairy in all parts except the upper portions of the corolla lobes. The authors consider that it may be mistaken for H. Gibbsii on account of the presence of hairs on the leaves, etc., but in H. Gibbsii the leaves are ciliated only, and the calyx lobes much narrower and sharply acute. Although the section Hebe of the genus Veronica is so richly represented in gardens, H. Allanii is regarded as a distinct acquisition, for it is easily raised from cuttings and even seeds, and will grow in poor soil in almost any situation.

HEBE AMPLEXICAULIS VAR. SUBERECTA

H. amplexicaulis was described by Armstrong in 1879 and is a well-known, almost prostrate garden plant. The variety suberecta now described by Messrs. Cockayne and Allan is distinguished from the type by its more open, straggling habit and long, naked branches, which end in sub-erect branchlets bearing crowded leaves. The authors state that under cultivation it becomes denser and of less rambling habit.

OURISIA MACPHERSONII.

A perennial rhizomatous herb, with thick radical-leaves, and bearing clusters of seven to eight flowers. The calyx lobes are purple at the apex, with distinct purple veins, while the corolla is white with a yellow throat. This species was found by Dr. Cockayne in the Fiord Botanical District of the South Island of New Zealand, on shady banks of the River Spey, at an altitude of 210 m., and also in open, boggy ground towards Wilmot Pass, at 670 m. altitude.

O. Macphersonii has affinity with O. macrophylla and O. Colensoi, but differs from the former in its somewhat thicker, smaller leaves, the absence of cauline foliage, in having the lower bracts lanceolate petiolate, the yellow-throated flowers, and the oblong or obovate calyx lobes. From O. Colensoi it is distinguished by its stouter habit, bracts in whorls and more numerous and larger flowers on longer petioles in whorls of seven to eight.

We understand that this species flowers for about two months, commencing to bloom under cultivation near Wellington in the middle of October, and continuing until the second week of December. It is said to be a species of easy cultivation, and in the southern, moister parts of New Zealand should grow with the greatest vigour. Tiers of large white flowers with their yellow-throats, borne one above the other after the manner of Primula japonica, make O. Macphersonii a particularly effective plant for the alpine garden. The authors state that it will not tolerate drought.

PUBLIC PARKS AND GARDENS.

Bathgate Town Council has received approval for the provision of a public park for the town. The estimated cost is £7,533. The park will be on the Kirkton estate and will extend to 18 acres, with bowling greens, tennis courts and pavilions, putting greens, football ground, bandstand and a model yacht pond.

The Urban District Council of Budleigh Salterton is considering the provision of a public park for the town.

The Town Clerk of Cardiff has been authorised to negotiate for certain land surrounding Heath House with a view to the provision of a recreation ground.

Ossett Town Council will make application to the Ministry of Health for sanction to borrow £708 for laying-out recreation grounds at Manor Road and Chidswell Lane.

Shirley Parish Council has recommended the District Council to purchase fourteen acres of land near Stratford Road for a recreation ground.

The Week's Work.

THE ORCHID HOUSES.

By J. COLLIER, Gardener to Sir JEREMIAH COLMAN, Bart., Gatton Park, Reigate.

Maxillaria.—Certain species of Maxillaria, including the well-known M. venusta, M. candida, M. Mooreana and M. picta are becoming active at the roots, and plants that require fresh rooting materials should be given attention. The species enumerated are best grown in pots or pans, which should be well-drained. In repotting the plants press the compost firmly around their bases. Place them in a shady position in the house and water them carefully. The water should be poured around the inner edges of the receptacle so that it may not lodge in the young growths. Such species as M. Sanderiana and M. Lindenii, that flower at this season of the year, are best grown in Teak-wood baskets, as the flower spikes sometimes push downwards through the bottom of the receptacle. For this reason crocks should not be employed for drainage. These two species, together with M. Huebschii, should not be potted until after they have passed out of flower. A mixture of Osmunda-fibre and Sphagnum-moss provides a suitable rooting-medium. These orchids will grow well in the coolest part of the intermediate house, or in the warmest part of the Odontoglossum house.

Insect Pests.—With the steadily increasing temperature from sun-heat, insect pests of all kinds, especially thrips and scale, will become very active and increase rapidly. It is a matter of the utmost importance that these pests are destroyed with the least possible delay, otherwise they will quickly cripple the new growths.

Seedlings.—Vigorous Orchid seedlings are now more or less active and making roots freely, and so soon as they have filled their receptacles with roots the necessary repotting should be done at once. Seedlings approaching the flowering stage should be placed where they will receive the maximum amount of light; younger plants make better progress if placed where they can be afforded a little extra shade and a rather moister atmosphere.

FRUITS UNDER GLASS.

By T. PATEMAN, Gardener to SIR CHARLES NALL-CAIN, Brocket Hall, Hertfordshire.

Late Vines.—Vines growing in late houses are making good growth and fire-heat is not necessary, but so soon as the vines are in bloom a little fire-heat may be used at night and during sunless weather to favour the distributing of the pollen. The shoots of two of the varieties generally grown in late vineries, namely, Black Alicante and Appley Towers, are liable to snap out at their bases when the grower attempts to tie them to the wires in their early stages of growth, especially when the weather is changeable, with sudden bursts of sunshine. Any attempts made to secure the young growths to the wires under these conditions would prove fatal. For this reason the training of the shoots is best deferred until such time as the tips are pinched out, which, in most cases, are removed at the second leaf beyond the bunch. Should the young growths touch the glass they may be drawn slightly away by means of a long tie, but much depends on the amount of space provided between the wires and the glass. Where ample space is allowed, I have known the tying of the young growths to be deferred until the vines have set their crop and the bunches required to be thinned, when both operations have been done at the same time. Other varieties that need a little care in this respect are Lady Hutt and Mrs. Pearson.

General Remarks.—At this season of the year when all kinds of fruit trees are in active growth, special care is needed in the watering and ventilation of fruit houses. With regard to watering, the grower must be guided by outside conditions; should the weather prove hot, with drying winds prevailing, do not hesitate to give water freely; but should the weather prove dull, supply water with discretion. The same care is needed with regard to ventilation. Admit air freely in genial weather, but do not subject the plants to cold draughts.

THE KITCHEN GARDEN.

By F. STREETER, Gardener to LORD LECONFIELD, Petworth Park, Petworth, Sussex.

Mulching.—The application of mulches, whether of short or long litter, or even of grass from the lawn mowings, is of the very greatest benefit to the majority of growing crops, as it not only conserves moisture but, in the case of manure, acts as a good stimulant to Carrots, Onions, Beet, Turnips, and similar vegetables. Sifted spent Mushroom-bed manure is of the greatest value. On very heavy soils half-decayed leaf-mould is particularly useful.

Hoeing.—Hoeing is another very important operation and of far more importance than is often imagined, not only for keeping down weeds but for conserving the moisture in the soil. It is foolish to wait until weeds are visible; keep the surface soil stirred and hoed as often as possible. We endeavour to hoe all the ground at least once a fortnight. This is managed by each workman in the kitchen garden taking one or more areas in the same way as the young men in the glass department undertake their charges. The Dutch hoe is the most valuable implement for this operation although for moving the soil more deeply we use the Buco tool.

Watering.—Wherever practical it is imperative for the fine cultivation of vegetables to have an open pool of water filled from a reliable source; by this method the water is warmed by the sun and becomes suitable for watering the growing crops. When drawn direct from the pipes the water is usually very cold and often does more harm than good. The best time to apply water is in the evening when the sun is not directly over the crops; apply it overhead to Peas, Beans, Turnips and quickly-rooting and quickly-maturing vegetables.

Peas.—Continue to sow main-crop varieties weekly and stake earlier crops so soon as they are two or three inches tall; never allow the haulm to fall over, and to prevent this a line of self-binding string should be stretched right around the rows of those varieties about to flower, to keep them in position.

PLANTS UNDER GLASS.

By JOHN COUTTS, Assistant Curator, Royal Botanic Gardens, Kew.

Callistemon.—The Bottle-brush plant is very useful for conservatory decoration, and small specimens are suitable for furnishing the plant stages, while large plants in pots or tubs give a fine display in the beds. C. salignus, is the most common species in cultivation, and it has long been valued for its compact, free-flowering habit, but the less common C. lanceolatus var. splendens (syn. Metrosideros citrina) is even better, producing its scarlet flowers freely. It is easily propagated by means of cuttings. The plants grow freely, flowering when quite small, and quickly develop into large specimens. Callistemons may be grown in bush form or trained as standards, in which form they are very popular. They are propagated during the summer by means of cuttings, selecting for this purpose small, twiggy shoots that have just ripened. They should be inserted in pots containing sandy peat and the pots stood in a close case or under a bell-glass in a cool house. Young plants should be potted on as they require it, using a compost of one-half light loam and fibrous peat, with sufficient sand to render the mixture open and porous. In common with all hard-wooded plants they should be potted firmly.

Coleus thyrsoideus.—Where large specimens are required, cuttings should be inserted towards the end of May, while small plants for the stages may be obtained by propagating so late as August and September. Those propagated last September are excellent for growing on into large specimens. This blue-flowered Coleus should be given cool greenhouse treatment during the summer, but water at the roots must be carefully afforded at all times.

General Remarks.—Leonotis Leonurus, which is so useful for autumn flowering, should be potted on as necessary. Well-grown plants will require eight-inch pots for flowering in, and should be stood out-of-doors in an open, sunny position during the summer. A great variety, of plants propagated earlier in the season, especially those grown for autumn and winter flowering, should receive attention as regards potting as they require it; these include such well-known and popular subjects as Eranthemum pulchellum, Moschosma riparium, Coleus barbatus, Thyrsacanthus rutilans, Clerodendron fallax, Plumbago rosea and winter-flowering Begonias of various types.

HARDY FRUIT GARDEN.

By W. AUTON, Gardener to VISCOUNT ELVEDEN, Pyrford Court, Woking, Surrey.

Morello Cherries.—A large proportion of the crop of this fruit is borne on the previous year's growths, and disbudding similar to that practised in the cases of Peaches and Nectarines should be carried out. Leave a sufficient number of healthy young shoots at intervals all over the tree but guard against overcrowding. Black fly is one of the worst pests that Cherry growers have to contend with, and a sharp watch should be kept for early attacks. Dusting with Tobacco powder or Hellebore powder will keep the fly in check, and daily heavy syringings are a good deterrent.

Wall Trees.—Trees of various kinds on walls will now be making rapid growth and should be frequently inspected. The object now is to search for insects and remove superfluous shoots so as to ensure clean growth with ample room for development. Remove all discoloured and unhealthy leaves, and if scale insects appear hand sponging with Tobacco water and vigorous syringing with tepid water afterwards is the best procedure. The fruits, which are now attaining some size, will then present a clean, fresh appearance.

Strawberries.—Early Strawberries are beginning to open their flowers, and it is advisable to have some light, protecting material in readiness in case of frost. Plants that have been grown inside and have been duly hardened may be planted in the open in deeply-dug and well-manured ground. Care should be taken that the balls are thoroughly moist, and it is wise to give them a soaking a few hours before planting. Make the soil thoroughly firm in planting, mulch with partially-decayed manure and, if the weather is dry, afford water until the plants are well-established in their new quarters.

Mildew.—If mildew appears it should be dealt with immediately as it not infrequently happens that the disease is allowed to obtain too strong a hold on fruit trees before an attempt is made to combat it. A timely dusting with flowers of sulphur in the early stage of development will check the disease and may prevent a serious attack. Although there are many useful specifics on the market it is difficult to beat the old-time one of dissolving soft soap in boiling water and stirring in as much sulphur as the liquid will absorb. This has an advantage over dry dusting in that it is not easily washed off by rain.

THE FLOWER GARDEN.

By F. C. PUDDLE, Gardener to LORD ABERCONWAY, Bodnant, Taly-Cafn, North Wales.

Primulas and Meconopsis.—Seedlings from seeds sown in January and February are now ready for pricking out into pans or boxes. A suitable compost consists of two-parts leaf-mould, one part loam, and one part of silver sand, but these proportions may be varied according to the texture of the loam employed. Care should be taken not to make the soil too firm as anything in the nature of a hard rooting-medium at this stage will cause a check to the plants and result in stunted growth. The pans containing the seedlings may be placed in cool, shaded frames, but abundance of air should be admitted at all times. These airy conditions are especially necessary in the case of Meconopsis for although they like cool, moist conditions during the summer months, anything approaching a stagnant atmosphere is very injurious to them, and it often happens that plants grown on the shady side of a hedge or wall make better progress than those given the protection of a frame. Many Primulas are now flowering, and if seeds are desired the only safe plan is to hand-fertilise the flowers. Whenever possible the plants having pin-eyed flowers should be selected for seed bearing, and those with thrum-eyed flowers used as pollenisers.

FOR NORTHERN GARDENERS.

By A. T. HARRISON, Gardener to the MARQUIS OF AILSA, Culzean Castle, Maybole, Ayrshire.

Beet.—The main sowing of Beet for winter supplies should now be made on ground that has been deeply worked but not recently manured. Earlier sowings, which consist of the round varieties, are principally used during summer and autumn, but they possess good keeping qualities, and may be grown for storing in the same way as the long-rooted kinds. A variety of the latter which has found much favour during recent years is Bell's Non-bleeding, and, as its name implies, this kind may be cut up into lengths for cooking without losing its deep colour. Before sowing, the ground should be given a dressing of superphosphate at the rate of two ounces per square yard, and one ounce of sulphate of potash to the same area, both being well-worked into the soil.

Garden Swede.—This useful winter vegetable is not so frequently grown in gardens as it should be, probably because, being grown on farms in abundance, it is readily obtained when required, but a few rows sown now will, on good soil, produce a heavy crop of medium-sized roots of a much finer quality than those usually obtained from field culture. Allow plenty of room between the rows—two feet being the usual distance—and thin the seedlings early to from nine inches to one foot apart.

Herbaceous Borders.—The staking of early-flowering subjects such as Paeonies, Anchusas, etc., will have been attended to some time ago, and the later-flowering plants should now be supported where necessary. The staking of plants in herbaceous borders is work that calls for thought and knowledge of the various plants, their height, and habits; when the work is well done very few of the supporting stakes should be visible. Bunching together of these hardy plants into sheaves should never be practised; allow them plenty of room to develop their natural grace, and only support them when absolutely necessary. For bushy subjects, such as Michaelmas Daisies and Phloxes, a few small branches of Hazel or other suitable twigs should be placed around them in such a way that the growths will completely hide their supports in the course of a few days. The hoe must also be regularly employed in the flower border, and as earlier-flowering plants pass over, their withered foliage should be removed, and their places filled with annuals grown for that purpose in boxes.

FLOWER GARDEN.

SPRING BEDDING PLANTS.

ALTHOUGH spring bedding is at the zenith of its beauty it is necessary to commence preparations for next year's display, and seeds of Wallflowers, Myosotis, Violas, Primroses, Polyanthuses, etc., may now be sown. Wallflowers should be grown in an open situation, and early transplanting is very essential to enable the plants to make that dwarf, bushy growth which is so desirable.

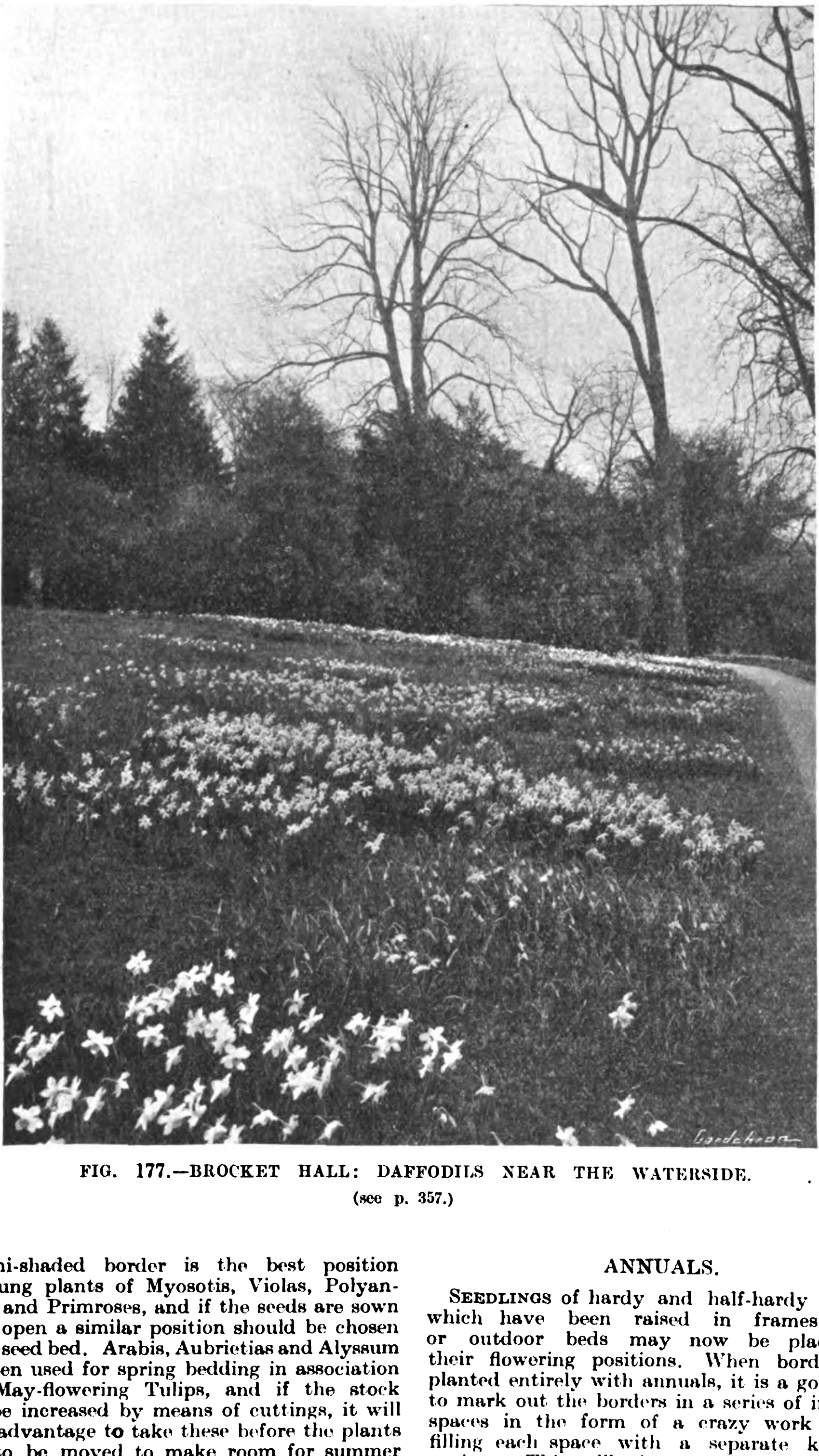

FIG. 177.—BROCKET HALL: DAFFODILS NEAR THE WATERSIDE.
(see p. 357.)

A semi-shaded border is the best position for young plants of Myosotis, Violas, Polyanthuses and Primroses, and if the seeds are sown in the open a similar position should be chosen for the seed bed. Arabis, Aubrietias and Alyssum are often used for spring bedding in association with May-flowering Tulips, and if the stock is to be increased by means of cuttings, it will be an advantage to take these before the plants have to be moved to make room for summer bedding. The cuttings strike readily if inserted in sandy soil in shaded frames. *F. P.*

RAISING PERENNIALS AND BIENNIALS FROM SEEDS.

THE present is a suitable time for sowing seeds of both these useful classes of plants, and many kinds of both may be raised in this way to furnish the herbaceous borders in future years.

The seeds of the larger kinds, such as those of Aquilegias and Delphiniums may be sown in the open, but smaller seeds, such as Primulas and Alyssum, should be sown in boxes or in frames to be transplanted, so soon as the seedlings are large enough, to nursery beds. Wallflowers, Canterbury Bells and other biennials sown thinly now and the seedlings pricked out when ready will make good plants, well-established before the autumn, and be most useful where spring bedding is practised. *A. T. H.*

ANNUALS.

SEEDLINGS of hardy and half-hardy annuals which have been raised in frames, boxes or outdoor beds may now be placed in their flowering positions. When borders are planted entirely with annuals, it is a good plan to mark out the borders in a series of irregular spaces in the form of a crazy work design, filling each space with a separate kind or variety. This will give a much better effect than plantings in regular rows or circles. The colours should be so arranged that they blend harmoniously. Effective arrangements composed of hardy annuals, half-hardy annuals, or a combination of the two may also be created, whilst the dwarfer varieties of Dahlias may be blended in all such borders with good effect. *F. C. Puddle, Bodnant Gardens.*

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ADVERTISEMENTS should be sent to the PUBLISHER, 5, Tavistock Street, Covent Garden, W.C. 2.

Editors and Publisher.—*Our correspondents would obviate delay in obtaining answers to their communications, and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all letters relating to financial matters and to advertisements should be addressed to the* PUBLISHER; *and that all communications intended for publication or referring to the literary department, and all plants to be named should be directed to the* EDITORS. *The two departments, Publishing and Editorial, are distinct, and much unnecessary delay and confusion arise when letters are misdirected.*

Newspapers.—*Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editors to see.*

Illustrations.—*The Editors will be glad to receive and to select photographs or drawings suitable for reproduction, of gardens, or of remarkable flowers, trees, etc., but they cannot be responsible for loss or injury.*

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Letters for Publication *as well as specimens of plants for naming, should be addressed to the* **EDITORS, 5, Tavistock Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Local News.—*Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers.*

MARKET FRUIT GARDEN.

ALTHOUGH April opened with a spell of warm, sunny weather, it was, in the main, a month of rain and wind. At my place the rainfall amounted to 3·42 inches, the most recorded in April since 1913. During the latter half of the month vegetation made very little progress, and prospects for fruit were certainly not enhanced. Nearly all varieties of Apples were in full bloom during the last fortnight, the blossoms opening very slowly and holding on for a long time during weather which must have been far from ideal for pollenation. There were several ground frosts which injured the bloom of Strawberries and Black Currants in exposed positions.

FRUIT PROSPECTS.

Plums passed out of bloom quickly, which is generally a good sign. Most of it was open during a favourable spell of weather, when bees were active, and it seems to have set well; but it will be necessary to wait for some time yet before one can tell how much of the fruit is going to persist. Since setting, the fruitlets have made little progress, and it is quite likely that many of them will fall instead of swelling out. Apples bloomed during much less favourable conditions. Varieties which made the best display with me were Worcester Pearmain, Blenheim Pippin, Early Victoria, The Queen, Charles Ross, Rival, Lord Derby, Royal Jubilee, Early Julyan and Domino. Bramley's Seedling promises well, so far, except in some blocks which carried very heavy crops last year. Newton Wonder made a moderate but sufficient show of blossom. Cox's Orange Pippin and Beauty of Bath were patchy and will not give me anything like such yields as I had last season. Lane's Prince Albert and Allington Pippin are practically total failures after heavy crops in 1925. Altogether there is a chance of an average crop of Apples if a fair proportion of the bloom sets. Bush fruits are very promising. A few Boskoop Giant and Baldwin Black Currants in an exposed plantation lost some of their bloom through frost; but Seabrook's Black and French Black, which occupy the largest area, have not looked so well for several years. If the fruit does not "run off" later on there will be a heavy crop. Gooseberry and Red Currant bushes are loaded.

PESTS AND DISEASES.

Insect pests have not given serious trouble so far, but there is ample evidence that they would have done so if most of my trees had not been protected by winter spraying with tar distillate wash. The blossom opened beautifully clean on trees so treated, the control of aphides and suckers being practically complete. Luckily I sprayed those orchards which are showing the most bloom. Trees which did not receive the treatment were in some cases badly attacked by aphis, as many as a dozen of the insects being counted on most of the buds. Fortunately, they hatched out rather in advance of the buds, and were caught whilst still on the outside, where they were easily killed by spraying with a nicotine and soap wash. The most convincing evidence of the value of tar distillate wash is to be seen in one block of Beauty of Bath, where I had to stop the winter spraying because the buds were getting too forward. Six rows did not receive the treatment, and these are now showing plenty of aphis, and will have to be sprayed so soon as the bloom has fallen. The rest of the trees in this block, the buds of which appeared to be rather badly scorched by the winter wash, bloomed quite well after all, and are free from aphides and suckers. The other varieties in this plantation were finished with a weaker solution of the tar distillate (five per cent. instead of seven-and-a-half per cent.), and this has given good control, as shown by the fact that one row left unsprayed is attacked by aphides. The stronger solution is safer, however. There are some winter moth and tortrix caterpillars to be found on the sprayed trees, but nothing like so many as on those that were not treated. On the latter, winter moth caterpillars are more numerous than they have been for several years. A ten per cent. solution is recommended for these pests; but I have not tried it. All my Plums were sprayed with tar distillate, and look very clean and healthy in consequence. A few patches of leaf-curling aphis here and there on branches that were evidently missed show what might have been expected if the winter spraying had been neglected. In some cases where rain fell soon after the application of the winter wash the result does not appear to have been affected.

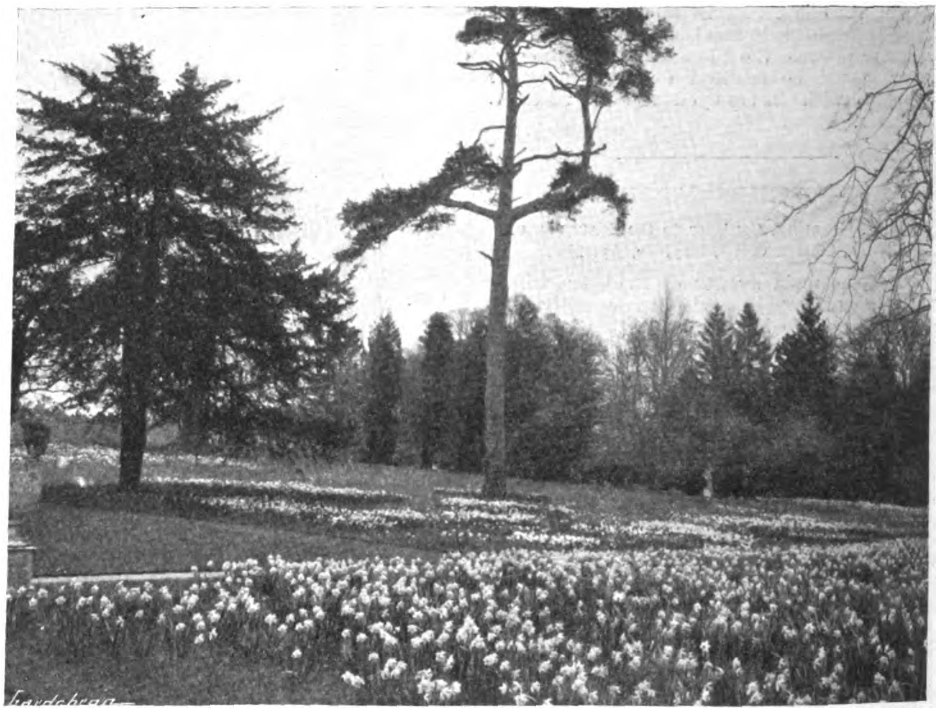


FIG. 178.—BROCKET HALL: DAFFODILS NATURALISED AROUND AN OLD SCOTS FIR

(see p. 357.)

PREVENTING APPLE SCAB.

All varieties of Apples liable to scab were sprayed with Bordeaux mixture in the pink bud stage where there was enough bloom to make it worth while. Most of this work was done under excellent conditions. The formula used for all varieties was 6-8-100, which seems to be the favourite now with American growers. I used it in preference to the standard 8-8-100 formula because the slight excess of lime obviates the need for testing the wash for free copper. As a little of the lime often remains unslaked it is as well to have a margin of safety. On all the trees sprayed it is possible to find some evidence of the effect of the wash on the leaves in the form of a "peppering" of dark spots, and in some cases slight marginal scorch; but this did not develop until some time after spraying, by which time there were plenty of new leaves. The wet weather following spraying was just of the kind to bring out Bordeaux injury. There was, however, no scorching of any serious importance, unless it be in the case of the six rows of Beauty of Bath already mentioned as not having been sprayed previously with tar distillate. These are scorched noticeably more than the other trees in the same block which had the winter wash. I attribute this to the fact that the winter-sprayed trees were decidedly more backward when the Bordeaux mixture was applied, the retarding effect of tar distillate being well recognised.

So far, I have not found any scab on either sprayed or unsprayed trees except on a Siberian Crab in my garden, which is generally the first to show the disease. I cannot, therefore, tell yet whether the spraying has been effective. The weather at blossoming time was of a kind to favour scab, so it will be surprising if this does not develop before long. Varieties that withstand Bordeaux mixture will be sprayed again so soon as the petals have fallen; but I shall not risk any further spraying in the case of Cox's Orange Pippin and Beauty of Bath. I am very glad to find that these tender varieties withstand Bordeaux mixture (6-8-100) before blooming. Probably they would not be harmed by spraying after flowering with a combination of lime-sulphur (1 in 100) and lead arsenate, as suggested by the East Malling Research Station for tender varieties liable to Bordeaux injury. I shall try this, but only on an experimental scale.

BUSH FRUIT VARIETIES.

In the commercial culture of bush fruits the choice of varieties suited to the district is of great importance. A grower starting in a new district may easily lose several years if he is unfortunate enough to plant varieties that are unsuitable, so that he has to make a fresh start after two or three years. It is for this reason that the demonstration plots established by some of the County Councils are of value. At one time several acres of Gooseberries were grown on my place, but they were done away with mainly because so many of the bushes were killed by botrytis. Three years ago I decided to try again and planted Careless and Whitesmith. The former was chosen because it is generally considered to be more resistant than most varieties to American Gooseberry mildew, and the latter because it does well in my private garden. Both varieties made a splendid start and were cropping well this year. But the old trouble, botryris, has begun to cause gaps amongst the Whitesmith, and I doubt if this sort will be worth growing. It is curious that one can grow almost anything in an enclosed garden but may fail with it in the open field. Careless is so far free from this disease, and looks like proving a thoroughly satisfactory variety for the district. So far as mildew is concerned, both varieties were attacked on the tips of last year's shoots, but only after the fruit had been gathered. The tips were cut off and burned, and the bushes have just been sprayed with a proprietary sodium polysulphide wash which, at any rate, seems to have the merit of doing no harm. Whether it will do any good remains to be seen. In spraying to prevent this disease there is always the danger of defoliating the bushes. In some districts lime-sulphur may be used with impunity, but in others it causes a lot of injury. Some varieties, of course, withstand it better than others. It is always wise to try a few bushes first.

In the case of Black Currants, the choice of varieties is even more important; and the matter of strain within the variety is also well worth attention. I believe that, on stiff soil, Boskoop Giant is likely to give the best results. Seabrook's Black and French Black seem to do best on light soil. That, at any rate, is my experience, and other growers have told me the same. Baldwin and Goliath (Victoria) I am not sure about. These varieties represent the four main types of Black Currants, and it is just as well to try them all. They need testing over a series of years as they have their good and bad seasons. *Market Grower.*

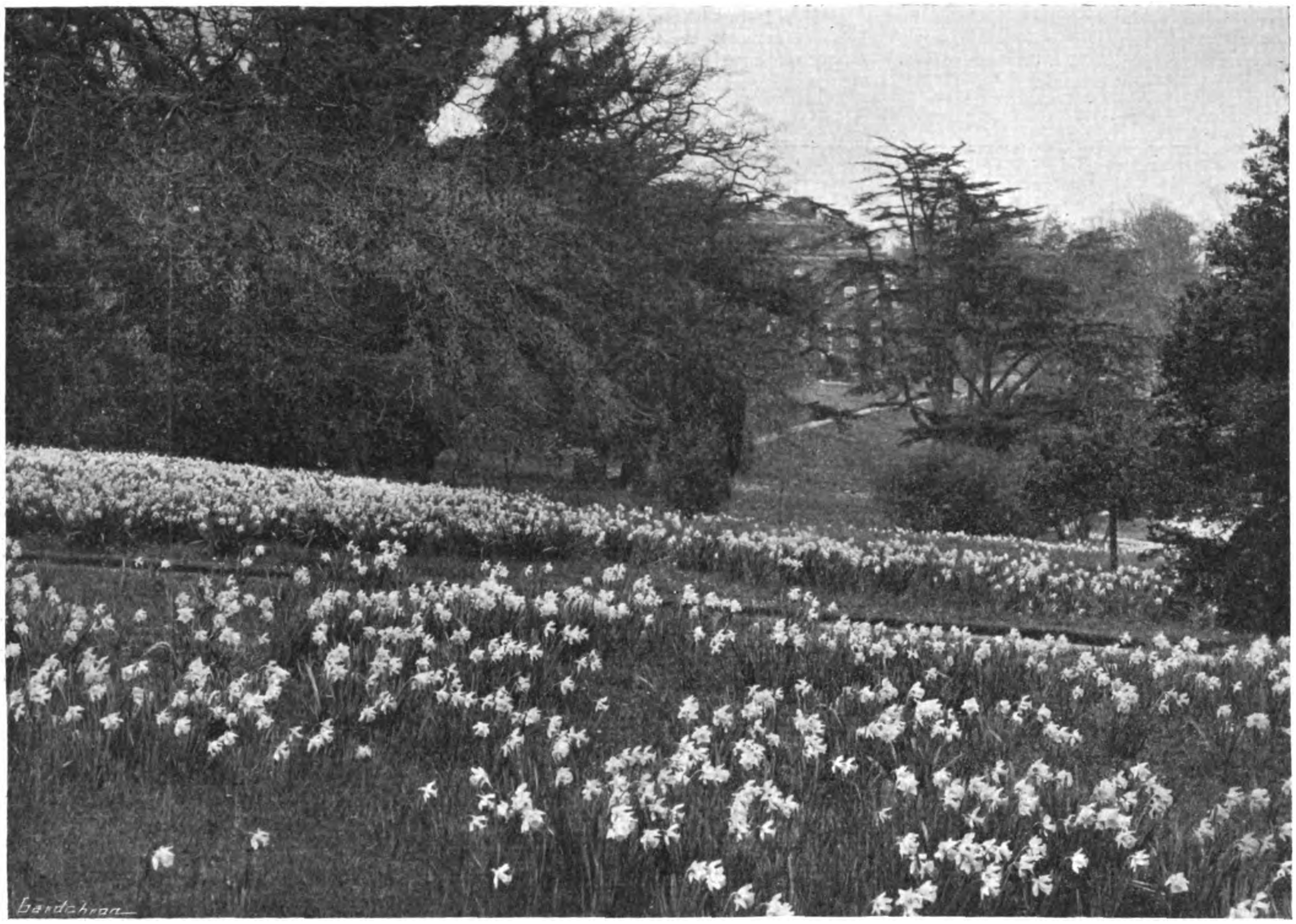


FIG. 179.—BROCKET HALL: DAFFODILS ON THE GRASS SLOPES.

BROCKET HALL IN SPRING.

THE name of Brocket Hall, the one-time home of two of the most prominent Prime Ministers this country has produced—Lord Melbourne and Lord Palmerston — recalls memories of a glorious past, when the pleasure grounds and gardens were the equal of any in the country, and the older generation of gardeners regarded Brocket as one of the show places in the country. The estate, endowed by Nature with all her charms, is gloriously beautiful and such improvements as have been effected by the art that doth mend nature have been done with a restraining hand, just sufficient to add further attractions without clashing with the dignity that a domain of this description carries.

When the present owner, Sir Charles Nall-Cain, entered into the estate in May, 1923, the mansion had been entirely renovated and improvements effected which have made it the equal of the finest in the land. With regard to the gardens and pleasure grounds, which in common with most large estates had suffered much neglect since the war, he was fortunate in having in his gardener, Mr. Thomas Pateman, one whose skill in such matters specially fitted him for the task, and of his advice Sir Charles has taken the fullest advantage. With both the work has been a labour of love, and when the outside improvements are completed, Brocket will once again rank with the fairest in the land.

The house is built on high ground overlooking St. Albans, mid-way between Welwyn and Hatfield, the latter town being some two-and-a-half miles distant. In the hollow at the foot of the knoll is a lake of eleven acres fed by a tributary of the River Lea. One big task was the clearing of the lake of its silt and weeds, and opening up views from the banks, which growths, after years of neglect, had obscured. The slopes along the water-side (for about a mile are planted with huge colonies of bulbous flowers, of which views are presented in the illustrations reproduced in Figs. 177 and 179.

Very early in the year the grass was resplendent with the rich colours of Scillas and Crocuses, which had as companions hosts of Snowdrops and patches of Winter Aconite. When the glories of these had departed, the scene was enlivened by the masses of Daffodils, and these in turn were followed by hosts of Bluebells that carry on the succession of bright tints until the Rhododendrons and evergreen Azaleas bloom.

Where the water enters the estate at the part known as The Arbor, is a row of very fine specimens of Taxodium distichum; these are some of the finest in the country and they exhibit in a remarkable manner the curious outgrowths from the roots known as "knees," which serve the purpose of supplying oxygen to the roots when the latter are submerged with water. Hereabouts are also many grand Oaks, Cedars, Planes, Sequoias, Yews and Scots Pines, the latter having big boles (Fig. 178) that rise clear of branches for a great height.

The shrubbery border, in which the Crown Imperials shown in Fig. 180 are growing, is at the extreme end of The Arbor, and since the border has been thinned, the bulbous plants have increased in strength each year, and this season they flowered with freedom; the strong growths the plants are making give promise of an even finer display next spring. Of the other phases of gardening practised at Brocket it is not our purpose now to write; suffice it to state that all branches are undertaken, and how well may be judged by the honours won by Mr. Pateman at numerous shows, for fruits, flowers and vegetables. He is specially keen on the growing of indoor fruits, and the many ranges of fruit houses were at the time of our visit in the pink of perfection, whilst the batches of such indoor plants as Begonias, Carnations, and Chrysanthemums served as a reminder of some of the plants this capable gardener is in the habit of exhibiting.

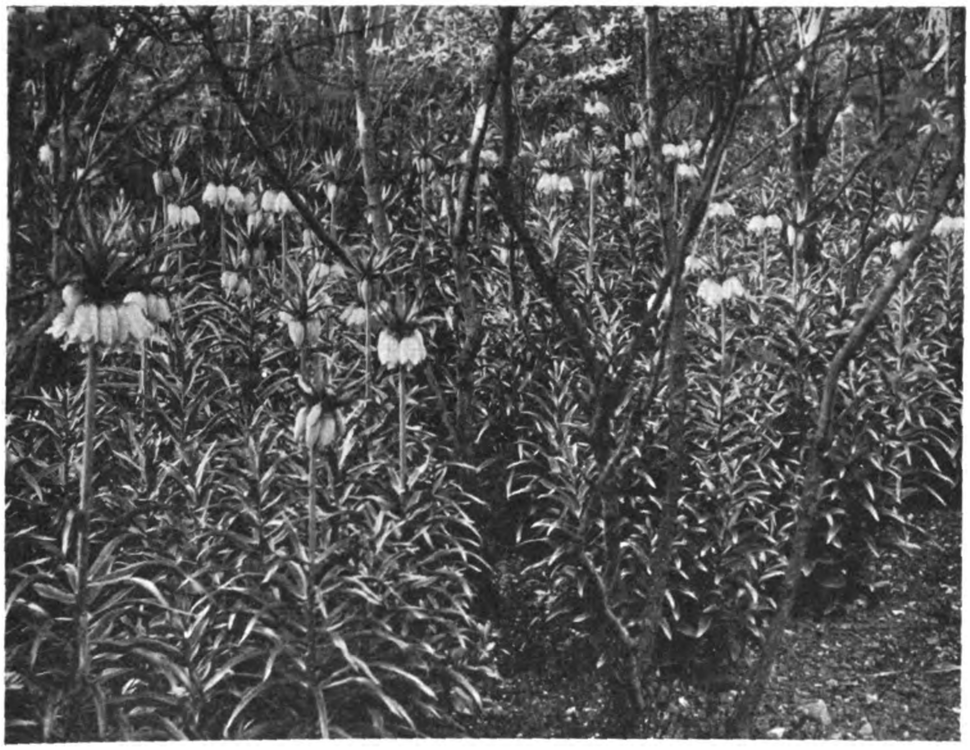


FIG. 180.—BROCKET HALL: CROWN IMPERIALS IN A SHRUB BORDER.

TREES AND SHRUBS.

DRIMYS WINTERI.

It is more than two months since a correspondent writing from Cornwall to one of the horticultural papers mentioned that Drimys Winteri was then about to open its flowers. With us, in South-west Scotland, it was only at that interesting stage in the last week of April.

This fine and none too common evergreen does not reward us every season with a generous display of flowers, but this year, no doubt owing to the fine summer and autumn of 1925, it is bearing numerous clusters of its ivory-white blossoms. These clusters or loosely arranged racemes are composed of six or seven umbels each having a stalk from one-and-a-half to two inches long, which carries from five to seven separate flowers, each measuring just over one inch across, and the whole clusters, composed of between thirty and forty individual flowers, are produced at the terminals of last season's growths. This should be borne in mind when pruning this shrub, and only the longest shoots should be cut out, always leaving plenty of younger shoots to complete their growth uninterrupted, exactly in the manner one would treat a straggly-growing Rhododendron.

Being a native of South America, Drimys Winteri is only adapted to the milder districts of Britain, but even in favoured districts it is not met with frequently; it was introduced nearly one hundred years ago.

Drimys Winteri may be propagated by means of half-ripened shoots taken with a heel, and inserted in sandy soil in a warm house, but growth is very slow for the first year or two, and it is only when planted out that its leaves assume their dark green, leathery texture, which indicates robust health. *A. T. H., Culzean Castle Gardens, Ayrshire.*

AKEBIA QUINATA.

The purplish-brown or almost chocolate-coloured flowers of this climbing plant are fragrant, quite pretty, and are especially welcome during March; they are produced in axillary racemes. The leaves are divided into five leaflets, and being of a fresh, lively green they are very attractive. Akebia quinata is excellent for growing on a south or west wall, for clothing a summer house or trellis or for rambling over other shrubs; it is also a capital plant for the cool conservatory or greenhouse.

Sandy loam, peat and leaf-soil make up a suitable rooting-medium and propagation is effected by cuttings or by root-division.

A. quinata was introduced from Chusan so long ago as 1845. *Ralph E. Arnold.*

ALPINE GARDEN.

MENTHA REQUIENII.

Years ago, when I made my first acquaintance with Mentha Requienii, it was generally named Thymus corsicus, but it is not a Thyme, and has all the odour of a Mint, to an even more marked degree than most of the larger plants of the odoriferous race to which it belongs. It owes nothing to its stature or size of leaves or flowers for its favour. It is a miniature, creeping plant, closely hugging the soil, and carpeting it with tiny leaves and equally small, purple flowers. Its merit lies in its odour, which is most penetrating, yet grateful to those who love it. As has been said of it this plant is "literally reeking of Peppermint." The least touch with hand or foot will cause it to exhale this odour freely. It is not difficult to establish and is an excellent little plant for the crevices of "crazy" paths, between the stones, or in those of a flight of steps. I know, too, one garden where it has established itself among the closely cut grass of a lawn, and there it seems almost impossible to tread without perceiving its pleasing odour It has nothing beyond its interest and its fragrance to recommend it to many, yet when we study it we are impressed by the fact that such a tiny plant has such an appeal to our sense of smell. It is hardy but does not like wet winters.

SEDUM PRIMULOIDES.

On its first introduction from China a few years ago, Sedum primuloides made its debut into our gardens with a chorus of welcome. It was praised until those of us who have a considerable liking for the genus Sedum thought it would prove a great acquisition. It appears to have been called a glorified "white Heather," but that is as misleading as its specific name of primuloides, which it does not deserve, as it is most unlike that appreciated genus—Primula. It forms a close mass, about three inches high, composed of flattish, succulent leaves of a dark hue. On the ends of the shoots, when it condescends to bloom, it bears a single, white, closed bell, but of no great effect, so that the "glorification" of the Heather is a delusion and a snare. And it is very, very shy of blooming even in a warm, sunny place in dry soil. This has been my experience of S. primuloides, and I find that it is quite a common one. It evidently appears to call for warmer seasons than we enjoy. *S. Arnott.*

ANEMONE HALLERI.

Though akin to A. Pulsatilla, this handsome species differs in having less finely-cut leaves and larger flowers, with the segments of the corolla standing more widely apart. The flowers are violet-purple and produced on stalks six inches long. The whole plant is shaggy, with silky, silvery hairs.

A. Halleri is a real alpine species and grows well in a thoroughly drained, gritty soil, in a position exposed to full sun.

A group of this beautiful Anemone has been in flower throughout April, and now, as the flower stalks elongate with the maturation of the seeds, so the broad foliage arises in a bold tuft. Even in very wet winters, I had no trouble with this plant when grown under the conditions described.

POLYGALA CALCAREA.

Our native P. calcarea should be more frequently grown in gardens. It is by no means difficult to cultivate when planted in gritty soil mixed with limestone or old mortar, and in an open situation.

Polygala calcarea forms dainty cushions of small, oval-pointed, bright green leaves, above which the elegant flower sprays of two to three inches appear in March and April. The blossoms, which last a long time, are much like those of the common P. vulgaris, but they are not only many weeks earlier, they eclipse even that bright little plant in the intensity of their vivid indigo-blue.

P. calcarea is quite hardy, and does not resent winter wet in a dry, open soil. *J.*

INDOOR PLANTS.

CHORIZEMAS.

THESE showy and attractive greenhouse plants are of free growth, and given a moderate amount of care and attention, well-furnished specimens may be produced in a comparatively short time. A stock may be propagated without any difficulty if the small side-shoots are selected for cuttings, when moderately firm, in the early part of the summer. A compost of good fibrous peat and mellow, turfy loam in equal parts with a liberal addition of sand and nodules of charcoal, well mixed together, suits them admirably, and enables them to make vigorous growth and produce flowers with the utmost profusion.

Chorizemas should not be over-potted while in a young state, and when they have attained a considerable size, a shift every second year will be ample. During the first year, at least, it will be necessary to pinch back the leading growths once or twice to promote the production of side-shoots. When this is done very little pruning will be required in after years, and it is in every way better to pinch out the points of young shoots than to cut back old branches.

Chorizemas are mostly of a straggling habit, and training should be commenced early.

A light and airy position is of the first importance to these plants, especially when they are making their new growths, for if they are too far from the glass or crowded with other plants, the growths will be thin, long-jointed, and in consequence will flower unsatisfactorily. By attention to these points it will be found that there is nothing difficult in the cultivation of Chorizemas. *A. P. C.*

PERPETUAL-FLOWERING CARNATIONS.

THESE are growing rapidly and need constant attention to disbudding and tying. Every effort should be made to ensure that the flower-stems are kept erect, as bent or twisted stems reduce their value considerably from a cut flower point of view. The shoots produced from the axils of the leaves should be rigorously suppressed, if flowers of the first quality are desired, as they tend to reduce the size of the blooms. Where size of flower is not of prime importance, two or three of the uppermost axillary shoots may be left to give the flowers (when cut) a more natural appearance.

The plants should receive a dressing of one of the approved Carnation manures at regular intervals; these manures contain all the desirable fertilising elements. Sulphate of potash and sulphate of ammonia should be applied only by careful and responsible persons, as they may do much harm if used carelessly. *A. T. H.*

ABNORMAL FLOWERING OF AGAVE.

ABNORMAL AGAVE.

THE inflorescence of most species of Agave is usually produced as a terminal shoot, and after the seed has ripened the plant dies, but shortly before doing so often throws out lateral suckers from the base.

A plant of Agave Ellemeetiana, C. Koch, in the Succulent House at the Royal Botanic Gardens, Kew, has recently developed two lateral inflorescences at the ground level, below the rosette of leaves. The taller of these has reached a height of thirty-seven inches and borne numerous perfect flowers as shown in the illustration (Fig. 181). The younger inflorescence arose on the opposite side of the plant.

A somewhat similar case in Agave americana, L., was recorded in *The Gardeners' Chronicle* for 1884, vol. xxii, p. 53, Fig. 15, in which, in the Oxford Botanic Garden, a basal shoot was developed with only two imperfect flowers on a plant which was dying after having borne a normal inflorescence. A specimen showing a condition like that on the Oxford plant is preserved in Gay's herbarium (now at Kew), and was taken from a plant which flowered in the Jardin des Plantes, Montpellier, in 1857. *C. H. W.*

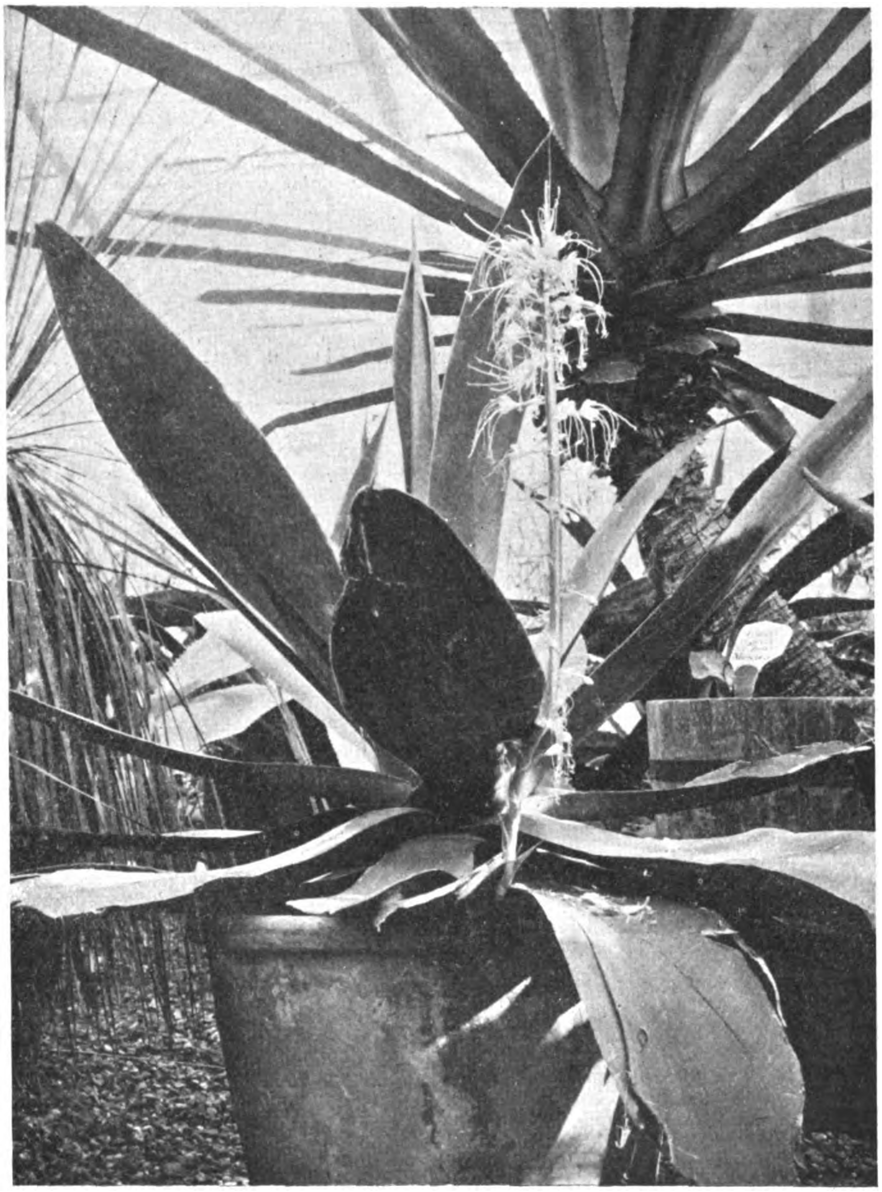


FIG. 181.—ABNORMAL FLOWERING OF AGAVE ELLEMEETIANA AT KEW.

NURSERY NOTES.

MESSRS. AUSTIN AND McASLAN.

ESTABLISHED so far back as 1717, the nursery business which is carried on by Messrs. Austin and McAslan at Glasgow has claims to be the oldest establishment of its kind in the British Isles. It was in that year Mr. John McAslan, founder of the firm, formed a nursery garden at the foot of Hutchison Street, now one of the busy business thoroughfares of the city, and there it remained until 1788, when the progress of the business necessitated its removal to a more extensive site, a little distance to the north in the vicinity of Rottenrow, Dobbies' Loan and Parliamentary Road. One hundred and ten years later the nursery was removed to Little Govan, and subsequent changes were made to Pollokshaws Road in 1828 and to Titwood in 1868. It remained in the latter locality until 1886, when a transference to its present site at Cathcart took place. Forty years ago the nursery was practically in the open country, but with the extension of the city it may now be described as the centre of a residential suburb.

Cathcart nursery has an area of forty-five acres, and the soil is of a heavy, loamy character. It is laid out on an ideal system, being subdivided into a series of blocks or squares bounded on each side by a high hedge which serves the purpose of windbreaks. This arrangement is advantageous in the systematic working of the nursery, and in providing shelter for subjects occupying exposed situations resulting from the high altitude of the site.

The firm has been engaged in the work of raising Roses almost from its inception. At the head office in Mitchell Street there is a framed catalogue containing the names of two hundred varieties of double Scotch Roses raised from seeds and cultivated by Messrs. Austin and McAslan in the seventeenth century, with a colour range that embraces white, cream, blush, purple, red, yellow, marbled, striped, etc. In recent years this department has undergone marked development, until approximately fully one-third of the total area is devoted to Roses. At the time of my visit 80,000 seedling Rosa canina Briars had been planted for budding during the coming season, and, despite the severe weather, a big break of Briars which had been budded last year were looking promising. During the past season there has been an exceptional demand for Betty Uprichard, and next in popularity were Los Angeles, Etoile de Holland and Mrs. Henry Morse, but the last suffered badly from mildew all over the country. In the group of older Roses Zéphirine Drouhin is a favourite.

In passing through the department devoted to flowering shrubs, ornamental trees and hedging plants, I noticed a fine collection of

Abies, among which were specimens of A. Fraseri, A. Veitchii and A. Pinsapo glauca, the last being resplendent in colour, while in the immediate neighbourhood Picea Alcockiana and P. Albertiana conica were prominent, together with a healthy block of Japanese Azaleas used in rockwork, and including A. amoena, which is very popular in Scotland. A large assortment of Conifers is grown at Cathcart, as they are in demand in connection with the lay-out of new housing schemes throughout the country. The plants are strong and healthy, and in that respect the examples of Cupressus C. Stewartii, C. Allumii and C. Triomphe de Boskoop were conspicuous. The Hamamelis were in full bloom, and H. mollis was particularly rich in colour.

Among the Cedars I noticed C.l atantica aurea, a small plant of striking appearance. C. a. glauca and Libocedrus decurrens. Of the thirty kinds of Berberis in cultivation the most popular of the evergreen species in the west of Scotland are B. Darwinii and the pretty, berrying sorts B. Wilsonae and B. polyantha, besides B. verruculosa, with its leaves of dark green above and glaucous white underneath. Near by were Conifers and Viburnums in bush and rock garden forms.

An extensive area is devoted to named hybrid Rhododendrons and Azaleas. In the first-named group Cunningham's White and Rosamond (pink) are extensively propagated from layers. For hedging purposes large quantities of oval-leafed Privet, Beech, Thorn, Cotoneaster, Holly and Yew are grown, and I noticed a grand lot of weeping standard trees of Elm, Ash, and Silver Birch.

Considerable space is allocated to forest trees, of which there were seen numerous healthy stocks of Scotch Fir, Norway and Sitka Spruce, Japanese and European Larch. There was also a quantity of the new hybrid Larch which it is anticipated will be popular in future owing to its quick-growing habit.

The claims of herbaceous plants are not overlooked, and the block next to the offices is entirely occupied by frames for raising bedding plants. A feature is made of Begonias, Violas and Coltness Gem Dahlia, while stocks of Gladioli have been increased of late in consequence of their greater popularity. The firm also specialises in alpines and, judging by the appearance of the Primulas, it was evident that the wet and dull atmosphere of the west of Scotland suits them to perfection.

Fruit trees are an important branch of the nursery business, and it was interesting to learn that the half-standard, bush and single cordon forms of Apple and Pear trees are preferred to the English standard form, which is seldom grown north of the Tweed nowadays. I also observed a good break of two-year-old Apple trees. At the time of my visit the range of glass houses contained a fine lot of Azalea indica, Ferns and Chrysanthemum cuttings, and as indicating the varied and comprehensive character of the nursery, I was impressed with the fine appearance of groups of half-hardy shrubs in pots, these being largely grown in the west Highlands.

Within the past year a landscape department has been added to the nursery, and there is an enormous staff employed in laying out pleasure grounds, rockeries, etc., for which several important contracts have been secured. *Y.*

VEGETABLE GARDEN.

SORREL.

The common Sorrel, Rumex Acetosa, so largely grown in climates warmer than our own, is not in very great demand in this country, nevertheless, for mixing with Spinach for use in small quantities in the salad bowl, as an ingredient in soups and sauces, or even as a separate dish, it is a valuable adjunct to our list of summer vegetables. The action of the plant is refrigerant and diuretic, hence its value in alimentation during hot weather, and as it possesses a piquant flavour it may be used by the skilful cook to produce an agreeable dish.

The garden Sorrels are amongst those plants which have scarcely been modified by cultivation, but remain very similar to the wild species when the latter is growing under favourable conditions. Although liking fairly good ground, Sorrel is not so exacting as Spinach in this respect. Excellent crops may be gathered from seedlings in the first year of their growth, after which the beds can be maintained by division of the tufts in early spring. A plantation remains productive for a period of three years if good cultivation is practised. Like many of the members of its natural order the Sorrel is usually dioecious, though occasionally monoecious, and it is a distinct advantage when making new beds by division of old tufts to choose only male plants, as these are not liable to become exhausted by seed-bearing.

A broad-leaved variety is extensively grown in the neighbourhood of Paris, where it is even cultivated in frames for the purpose of maintaining a constant supply. Several other species of Rumex, natives of southern Europe, are also grown on the continent, notably R. scutatus, which has very acid leaves, its chief merit being that it resists drought, and is thus a valuable Sorrel for a summer crop. *A. P. C.*

REPORT ON THE EXAMINATION OF CANADIAN APPLES FOR ARSENIC.

Immediately on the appearance in the daily press of cablegrams stating that cases of arsenical poisoning had occurred in England from eating imported Apples, steps were taken to procure for analysis samples of Canadian Apples from sprayed orchards in various parts of the Dominion. The work of collection was undertaken by the Dominion Entomologist, who through his provincial officers secured authenticated sprayed Apples from the chief Apple-exporting districts.

Forty-three samples in all were subjected to analysis: eight from Nova Scotia, eight from Quebec, seventeen from Ontario and ten from irrigated orchards in British Columbia.

Each sample, consisting of from six to twelve Apples, was divided and each portion separately analysed. The examination was confined to skin, calyx and stalk, as it is generally agreed that the flesh of the Apple is free from arsenic even though "ponderable amounts" of this poison may be present in the skin.

The full results of this examination are presented in an accompanying table. Following particulars as to province, variety and spraying, the arsenic content is expressed in fractions of a grain per pound and parts per million, the results obtained for each portion being separately reported. The spraying particulars comprise number of sprayings, date of last arsenical spraying and nature of the arsenical spray.

For the consideration of the results obtained in this enquiry it may be stated:—

(1) That the limit of arsenic (As_2O_3) suggested by the Royal Commission on Arsenical Poisoning (1903) is 1/100 grain per pound: and

(2) That the medical dose of arsenic (As_2O_3) given in the British Pharmacopeia, 1914, is from 1/64 to 1/16 of a grain.

Summarising the tabulated data it will be seen that approximately one half the samples were entirely free from arsenic; that, roughly, one-sixth showed traces of arsenic in amounts less than 1/10,000 of a grain per pound—a negligible quantity; and that one-third contained arsenic in quantities ranging from 1/10,000 to 1/190 of a grain per pound.

With the heaviest amount of arsenic found, viz., 1/190 of a grain per pound, it would require three pounds, or one dozen Apples of average size, to supply the minimum medical dose of arsenic, and twelve pounds, or four dozen Apples of average size, to supply the maximum medical dose.

The results of this enquiry furnish evidence to the effect that a very large proportion of Canadian sprayed Apples is entirely free from arsenic, and that in such cases in which arsenic has been detected the quantities are negligible. *Frank T. Shutt, Dominion Chemist, Central Experimental Farm, Ottawa.*

[The lengthy and admirable tables referred to by Dr. Schutt entirely bear out the summary presented above, therefore it would serve no useful purpose to publish them. Eds.]

FRUIT REGISTER.

APPLE SCARLET PEARMAIN.

Although opinions differ as to the merits of Apple Scarlet Pearmain, it is a favourite dessert variety with many growers, especially in private establishments, for it is of handsome appearance, and when well-grown of good quality. The tree is a vigorous grower and may be relied upon to produce good crops; it is especially suited to growing in orchards and makes a large, pyramid-shaped tree.

The origin of this Apple is somewhat obscure: it appears to have been introduced about 1800 by a Mr. Bell, land-steward to the Duke of Northumberland, at Sion House, Brentford, and for this reason it is sometimes known as Bell's Scarlet Pearmain. As will be seen on reference to the illustration (Fig. 182) the fruits are of conical shape with the eye set in a round, even, somewhat deep basin. The skin is shining and of a somewhat rich bright crimson, striped with darker crimson on the side exposed to the sun. The whole surface is sprinkled with numerous grey, russety dots, and there are lines of russet around the eye. The stalk is of medium length and set in a narrow cavity. The flesh is often tinged with red just under the skin; it is tender and juicy with a vinous flavour. The season of this useful Apple is September to October.

FRUIT PROSPECTS FOR 1926.

All fruit trees appear to be clean and healthy, and bush fruits are setting good crops, Gooseberries especially being very forward. Raspberries are showing an abundance of bloom, and the recent rains have greatly benefited the plants.

Apricots, of which Moor Park is still the best variety, have set an abundant crop and the fruits have had to be thinned freely. The same is true of Peaches.

A wet spring generally gives us a good crop of sweet Cherries, of which Guigne d'Annonay is the earliest to ripen. Black Heart and Governor Wood always set good crops here, but the latter is of poor quality with us. Plums have set freely and insect pests have not yet infested the trees. Morello Cherries are promising a heavy crop.

Certain varieties of Pears, such as Williams's Bon Chrêtien, Marie Louise, Durondeau, Doyenné du Comice, Glou Morceau and Winter Nelis give good promise for fine crops, but there is plenty of time for these to cast their fruits, especially Glou Morceau, which is one of our best varieties. Apples on standards, bushes, cordons and espaliers are setting well; the trees developed plenty of blossom, with the exception of Blenheim Pippin, Newton Wonder, Annie Elizabeth, Allington Pippin and Christmas Pearmain.

We have just finished our last year's crop of dessert Apples with the varieties Lord Burghley, which is our best-flavoured late variety, and Radnor Beauty.

The fruit walls here extend to over six hundred yards, and the wet weather has suited the trees, for borders at the foot of walls are difficult to keep moist in dry weather. *A. B. Wadds, Englefield Gardens, Reading, Berkshire.*

HOME CORRESPONDENCE.

Araujia sericifera.—In answer to Mr. C. Nicholson's query respecting my note on page 194, I am sorry I cannot now oblige him with "material," but perhaps some reader of *The Gardeners' Chronicle* would do so during the flowering period, which is July and August. Whether the flowers trap moths by gripping the antennae or proboscis may remain for future decision. The antennae may be half-an-inch long, whereas the proboscis varies from an inch up to three or four inches when unrolled in some big moths. This organ is folded or unfolded like a spring. The antennae, however, remain permanently in position, and have dot-like points. It is, therefore, easily understandable that one of the antennae may be entrapped leaving the point fixed between the "nippers" of the flower when the insect searches for its food. The proboscis may be fixed in the same way. Unfortunately I have no specimens of either as evidence, but trust later these may be forthcoming from interested readers to settle any doubt on this very interesting question. *Joseph Benbow.*

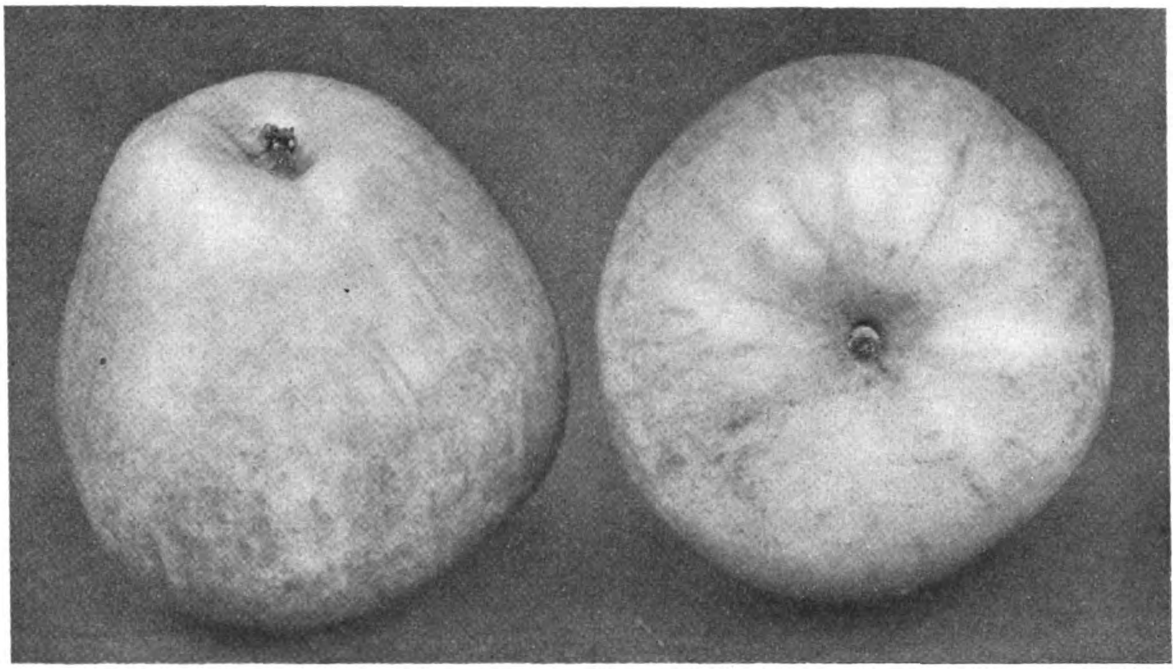


FIG. 182.—APPLE SCARLET PEARMAIN.
(see p. 360).

Confusion in Ceanothus species.—Can any of your readers inform me why everyone here in Devonshire will persist in calling Ceanothus dentatus, C. Veitchianus? I have been into private gardens and into various nurseries, but until now I have failed to find C. Veitchianus as figured in the *Botanical Magazine*, t. 5127. In one nursery I was shown the original plant of C. Veitchianus, "straight from Veitch's." This particular tree is a sturdy specimen of C. dentatus. Cannot this state of confusion be put right? I am well aware that the true C. Veitchianus is not too plentiful, but I know there are nurserymen in the home counties who have it; I myself have a few small plants among my collection of over fifty varieties. I enclose shoots of C. dentatus and C. Veitchianus for your inspection and comparison. *J. H.*

Yuccas.—Regarding Mr. Puddle's, in many ways, excellent note on these plants on page 264, I should like to warn gardeners not particularly acquainted with the genus against planting Y. Whipplei in inland gardens. Y. angustifolia (otherwise known as Yucca glauca) is also reputed to be of doubtful hardiness, but in thoroughly well-drained soil it has withstood many winters outdoors around London and in the south midlands. The choicer species would no doubt appreciate something in the nature of scree planting, where the sharpest of drainage could be ensured to well below any possible frost-line, but with access to water for the feeding roots. The grandest plant of Y. filamentosa which it has ever been my good fortune to see proved—when lifting and division at length became necessary—to have gained access to a drain which carried a constant supply of water. *R. V. G. W.*

Lettuces for all Seasons.—Referring to Mr. J. Wilson's article on Lettuces for all Seasons, in your issue for April 24, I have found All the Year Round an ideal variety for early use, grown in a cold house. In October last I planted out August-raised seedlings, and on January 28 I was able to cut really good Lettuces. These were cleared about a month ago. No heat was given at any time and cultivation was carefully carried out. Full ventilation was given whenever the weather permitted, and the plants were watered on two occasions only until the end of January. Protection during 19° of frost registered in the house was given in the form of newspapers spread over the plants at night and not removed until eleven o'clock next morning. Two parts of flowers of sulphur and one of lime were used to control mildew. Lettuces are much hardier subjects than is generally believed. *A. C. Shilling, Instructor in Horticulture, Norfolk.*

Lobelia cardinalis.—In reply to Mr. Hodgson, re Lobelia cardinalis (p. 328), I have no doubt that excellent plants may be produced by cold frame treatment in his district, viz., south Suffolkshire, but I stick to my original assertion, and endorse the opinion of your northern correspondent who advocated heated frames for the winter treatment of this plant in all northern counties of England. During sixteen years of experience gained in the following districts: York, Easingwold, West Hartlepool, Morpeth, Penrith and south Westmorland, I have found that Lobelia cardinalis succeeds better if grown in heat during the winter. It is not the amount of frost, but the atmospheric moisture which adversely affects plants in many of the above districts. It is extremely difficult to keep subjects planted out in cold frames on the dry side in northern counties, an essential point during the dormant season as applied to plant life. I have thoroughly tested both methods, and have come to the conclusion that I obtain better plants from stools boxed up after lifting them from borders, and wintered in heat, than by cold frame treatment. *F. C. King, Levens Hall Gardens, Milnthorpe.*

Frost and Insects.—In reply to Mr. C. Nicholson (p. 293), it is true that birds were killed off by thousands in the winter of 1916-17, and that insect pests were excessively numerous for some years following, but I must bring to Mr. Nicholson's notice some facts which he has apparently overlooked. Not only was such a severe spell of frost exceptional for this country but the times were exceptional also. During the years 1914-15-16, thousands of agricultural labourers, gardeners, game-keepers and police had joined His Majesty's forces, with the inevitable result that there was not sufficient labour to properly cultivate and clean the soil, the Wild Birds Protection Act could not be properly enforced, and birds were decimated through ignorance or malice before winter commenced. Thoroughly clearing the ground of all fallen leaves and rubbish and burning it before frost sets in is known to be one of the best means of prevention against insect pests, for it is frequently in such rubbish that insects hibernate during the winter. Owing to the lack of labour in the years immediately preceding the 1916-17 winter, the proper cleansing of land could not be carried out, and I contend (in answer to Mr. Nicholson's challenge) that pests were excessively numerous in the years following, not because the insects had been effectually protected by frost, but because of the above-mentioned facts. I go further, and suggest that not only was the mortality amongst birds appalling, but that the mortality amongst insects was tremendous; unfortunately, owing to the exceptional circumstances I have referred to, an enormous quantity survived to annoy us in the spring. Mr. Nicholson states that "the eggs and pupae of insects have been frozen into blocks of ice and so kept for days," yet the eggs have duly hatched out and the pupae found to be alive after being thawed. I do not dispute it; but I suggest that a more perfect test would be to freeze a given number of eggs and pupae into a block of ice, keep them frozen for about two months (in other words copy the winter of 1916-17 as nearly as possible), and, after thawing, count the survivors. *H. J. Phillip.*

Obituary.

George William Musk.—We deeply regret to announce that this well-known gardener passed away on April 21 after a brief illness. Mr. Musk, who was fifty-nine years of age, has been gardener to Brig.-Gen. Sir J. F. Laycock, Wiseton Hall, Doncaster, for twenty-three years. He was very thorough in all that he undertook, with the result that the Wiseton gardens became famous for their collections of Orchids, Carnations, Chrysanthemums, indoor fruits, etc. For over two decades the Wiseton gardens have been kept in an unusually high state of cultivation, thanks to the liberalty of Sir J. F. Laycock and the enterprise and skill of Mr. Musk. Schizanthus wisetonensis was one of his successes, and he grew Cypripedium Maudiae and other albinos exceptionally well. He was a very successful exhibitor, especially of Chrysanthemums, and his services as a judge were in great demand for the autumn shows in the north of England. Mr. Musk leaves a widow and three sons to mourn his loss. His youngest son, Harold, is the only one who is following his father's profession, having recently completed two years training at Kew. He won a scholarship at the South Eastern Agricultural College, and this he will complete at the Imperial College of Tropical Agriculture, Trinidad, before taking up a colonial appointment.

THE LATE G. W. MUSK.

William Currie.—We much regret to learn that Mr. William Currie, one of the best known seedsmen and nurserymen in the middle west of America, died at Mount Sinai hospital on Friday, April 9, after a week's illness. Mr. Currie was born in Scotland and was employed in his youth on the estate of the Earl of Eglinton, near Ayr. He went to Milwaukee to join his brother James in 1875. In 1877 the two brothers opened a small shop, and there they remained two years, removing later, on two occasions, to larger premises. Mr. Currie, whose brother James died in 1923, is survived by his wife and son and three daughters, as well as by one brother and two sisters. The three brothers were especially active in developing parks, cemeteries, and civic improvements of all kinds in Milwaukee, and it is proposed by the local Landscape Gardeners' Association to put up a joint memorial.

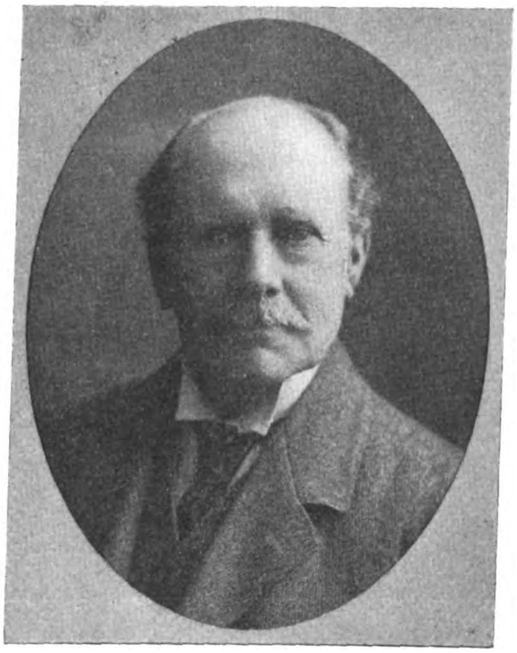
Thomas Peed.—We learn with very deep regret of the death of Mr. Thomas Peed, who passed away suddenly during the evening of Thursday, May 6. Mr. Thomas Peed was the senior member of the firm of Messrs. John Peed and Son, West Norwood, and, like his father, the late Mr. John Peed, he was widely known and enjoyed the respect and esteem of the horticultural trade as well as of gardeners throughout the country. He devoted himself to the development and extension of the business founded by his father, and was so successful that the firm has nurseries at Streatham and Morden in addition to the original establishment at West Norwood. Caladiums, Gloxinias, and fruit trees have been some of the specialities for which the firm has been noted, and none have shown finer specimen Caladiums over a long series of years than Messrs. J. Peed and Son. A portrait and appreciation of Mr. Thomas Peed appeared in our issue of Aug. 15, 1925, p. 122.

ANSWERS TO CORRESPONDENTS.

Daffodil Sport.—*Eromssap.* Your Daffodil appears to be a sport, and it is evidently an attempt on the part of the flower to produce double flowers. It might eventually become more double than it is at present, although under its present condition it has no special value.

Eggs for Identification.—*J. C. and Co.* The eggs sent are those of the Vapourer moth, Orgyia antiqua. This is one of the few moths which succeed in the London area. The eggs and cocoons were covered with London soot, and it is remarkable that any insect could withstand such conditions.

Millipedes.—*R. B.* The insects similar to wireworms are millipedes. They are, of course, not strictly insects, but belong to the group of Myriapods, which include also the centipedes. They are distinguished from the latter by having two legs to each joint instead of one, by being round in section instead of oval, and by being vegetarian instead of carnivorous. They are usually found associated with decaying organic matter; in this case they were probably introduced in dung. Old dung from which the heat has long passed is especially liable to infestation, and from the manure they readily pass on to feed on living vegetable matter. If the manure is found to be infested it should be mixed with one of the napthaline compounds sold under such names as Vaporite, etc., and allowed to stay for a week, if possible, covered with old sacks. In planting ground already manured scatter the naphthaline according to the amount suggested by the makers, and lightly fork it about five inches deep before planting. The other insect enclosed in a match-box failed to arrive. An active insect makes light of an ordinary match-box and should be sent in a tin box without holes in it.



THE LATE THOMAS PEED.

Names of Plants.—*T. S.* Pinus Pinea. *C. G.* 1, Clematis Armandii; 2, Rhododendron Maddenii; 3, Ribes aurea; 4, Omphalodes verna; 5, Arenaria balearica; 6, Saxifraga granulata; 7, Anemone Hepatica. *C. A.* Spiraea confusa. *T. R. C.* No numbers. Umbellularia californica; Azara microphylla; Osmanthus Fortunei; Rhododendron Thomsonii. *C. W. A.* 1, Rhododendron campanulatum hybrid; 2, R. Augustinii, a very good blue form; 3, R. Davidsonianum; 4, R. yanthinum; 5, R. pseudo-yanthinum; 6, R. polylepis; *R. E.* So far as we can tell, the names of the Narcissi are as follow: 1, Leedsii Mrs. Langtry; 2, Bicolor Empress; 3, Barrii Lady Godiva; 4, Incomp. Beauty; 5, Burbidgei; 6, Emperor; 7, Incomp. Sir Watkin; 8, Bicolor Grandis; *P. W.* Amelanchier canadensis.

Paeony Diseased.—*J. P.* The fungus on the Paeony is the "grey mould" (Botrytis paeoniae). Affected shoots should be cut off and burned. As "resting bodies" of this fungus are formed, known as sclerotia, the ground in which diseased plants have been growing should not be planted again with Paeonies for several years.

Pelargoniums Injured.—*J. P.* The spots on the Pelargoniums are due to cork-formation; the initial cause may be over-watering in high temperatures.

Peach Shoots for Examination.—*J. P.* The disease on the Peach shoots is of fungous origin. All affected twigs should be cut off and burned.

Roses in Cornwall.—*H. F. Penryn.* The frequent failure of H.T. and H.P. Roses to flower as well in Cornwall as in many other parts of the country is due to the mildness of the climate which permits growth to continue throughout the autumn and well on into winter, so that the period of annual rest is very short and, indeed, at times, lacking. Generally the best Roses in the Duchy are found in gardens with a north-westerly aspect. The suggestion that the climatic disadvantage may be overcome by lifting the Roses, hanging them up for a month or two and then replanting, does not appeal to us as being a satisfactory method. It will be found that it is the climbing and the Polyantha Roses which generally do best in Cornwall. The former would include all the climbing forms of H.T. varieties. The following varieties are also likely to give good blooms:—Avoca, Conrad F. Meyer, Florence H. Veitch, Gruss an Teplitz, Hugh Dickson, J. B. Clark, Lady Waterlow, Sarah Bernhardt and Lemon Pillar.

Tomato Plants Failing.—*W. J. G.* The Tomato plants you submitted for examination are not diseased. The have simply been growing under unsuitable conditions. If you repot them, using a compost of five parts loam and one part well-rotted stable manure together with a sprinkling of lime, they should develop and become good plants, if they are watered correctly and grown in a night temperature of 60°. "Blueness" of Tomato seedlings may be due to either poorness of compost or too low a temperature.

Vine Leaves Unhealthy.—*J. McE.* The peculiar markings on the under surface of your vine leaves are caused by innumerable small water blisters, which give rise to the term "dropsy," or oedema. This is a physiological disorder, and, therefore, is not infectious. It is caused by the plants taking up more water than they are giving off. Many plants suffer from this disorder when their roots are getting too much water and their leaves are prevented from getting rid of this water quickly by reason of bad light and too much moisture in the atmosphere. If you restrict the water supply and ventilate the houses a little the disorder will disappear, especially if the light conditions improve.

Vine Leaves Unhealthy.—*Lota.* No insect pest or fungous disease was present on the Vine leaves sent, therefore, the sickly condition of the leaves must be accounted for by wrong cultural conditions, which only those on the spot can ascertain.

Communications Received.—H. J. P.—W. C.—J. F. S.—A. M.—M. L.—A. and M'A.—M. W.—E. G. D.—W. C.—J. G. W.—A. T. G.—E. B.—J. M. G.—J. D. L.—F. I.—W. G. W. (Thanks for 1/6 for R.G.O.F. Box).

THE Gardeners' Chronicle

No. 2056.—*SATURDAY, MAY* 22, 1926.

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SUPPLEMENT PLATE.
Odontoglossum White Admiral.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 55·9.

ACTUAL TEMPERATURE—
The Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, May 19, 10 a.m. Bar. 30·1 Temp. 54°. Weather, Dull.

The Fertility of Egypt.

THE fertility of Egypt, which has long been proverbial, is, as everyone knows, due in large measure to the waters of the Nile; but the contributory causes which are no less interesting are not so well-known. Hence the account of the fertility of Egypt given by M. Mosséri, Director of Agricultural Research of the Royal Society of Agriculture of Egypt, in the *International Review of Agriculture*, 1926, is of exceptional interest, showing, as it does, that although the Nile waters are, as it were, the begetters of the fertile soil of Egypt, the maintenance of fertility is due also to climatic and human factors. According to this account the amazing productiveness of Egypt rests on a triple basis: the Nile, the sun and Bersim. Each year the slow-moving waters of the rivers bring down and distribute over the cultivated land a top-dressing of rich alluvial soil of composite origin, rich in lime and not too rich in other and less beneficent mineral compounds, such as soda. Over each acre is spread some six tons of this soil and, of course, a great volume of water. The beneficent effect of the water is, perhaps, not less than that of the rich alluvium which it brings. For before the flood water comes the land has been getting ready to receive and utilise it. After the crops have been taken, the soil, during the "charaqi" period, is lying fallow, exposed to the full glare of the sun. The sun blisters and bakes the ground. Deep cracks extending downward for five feet, and so wide that a man's arm may be thrust into them, appear on the surface. Under the high temperature the soil undergoes a partial sterilisation so that the chief natural lack of Egyptian soils—lack of nitrogen—may be presently made good and, moreover, the sticky, clay particles which form a considerable part of the Nile's bonus to fertility are dried and denatured. Through the soil fissures also air enters and leavens the whole lump so that the stubborn soil brought by recent flood water is rendered tractable, and that without deep ploughing and subsoiling and the other agricultural arts which cultivators in less favoured climates are constrained to practise. This "charaqi" period during which, though more efficiently, the soil is left to recover fertility by fallowing, is followed by the floods. The water percolates, dissolves away bicarbonates of soda and potash, thereby sweetening the soil, and when the waters have subsided nitrification begins vigorously and results in a storage of nitrates in the soil. The supply of nitrates drawn upon, it may be by a cereal crop, is augmented by the cultivation of the Legume "Bersim"—Trifolium alexandrinum—which was imported in the sixth century from the Balkan peninsula. This kindly plant, which is used in rotation with other crops, performs many useful services. It fixes nitrogen, smothers weeds and helps to take salt out of the soil. Thus it is that the land of Egypt has its fertility perennially renewed. The great demands of the growing crops are met and when the time for sowing comes again the soil has been almost automatically brought back to its pristine state of fertility. Anyone who sees the Egyptian "fellah" barely stirring the ground with a shallow and primitive plough, may in his haste think that a Fordson tractor with subsoil attachment might do better. But he is probably wrong and the "fellah" right to content himself with preparing his seed bed by just stirring the surface; for the sun is his ploughman and the air his cultivator; the Nile is his distributor of fertilizers. Climate and river combine to work the soil and to sustain its fertility. To improve on Nature — and certainly even in Egypt she may be improved on—is not the work for hasty thinkers and may well be left in the hands of capable observers and experimentors such as M. Mosséri. But we here can learn not a little from these facts of Egyptian fertility. We can, for example, see to it that the soil of our gardens gets the full benefit of such sunshine as falls upon it and suffers least damage from the overplus of rain which at unseasonable times inundates it and we certainly might do more to ensure a replenishment of nitrates which often are washed out of our ground by winter rains. In Egypt also the "fellah" may not need to know the value of lime in the soil, for the Nile brings calcium salts and spreads them for him, but at home there are too many gardens in limeless districts which are left deficient, to the detriment of crop and soil alike and there are too many gardens in which the soil is not left rough enough in winter; for we at all events have one beneficient cultivator of whose activities the "fellah" knows nothing, and that is frost. The past winter with its rigours has not been all misfortune for the frost has brought a new kindliness to heavy soils which were laid up rough, the more readily to crumble under the iron hand of hard weather.

The "Gardeners' Chronicle" and the General Strike.—The effect of the general strike upon the printing and publication of *The Gardeners' Chronicle* may be stated in a few words. Compositors continued to work until the evening of Wednesday, May 5; from then until Thursday, May 13, no composing was done. From May 3 until May 17 printing (machining) was not possible. Our issue dated May 8, ready for the printing machines at the close of Wednesday, May 5, was printed on May 17, and postal copies were sent out the same day. Meanwhile, the issue dated May 15 was composed and made up, printed on May 20 and postal copies sent out. While that issue was being prepared for the press, the present issue was also undergoing preparation; consequently our staff had, at one stage or another, three issues on hand during one week. We feel sure readers will appreciate some of the difficulties under which we have been working and excuse the delays, for which we were not responsible. The difficulty of distribution through the newsagents remains, and until the distributing firms and their employees have come to an agreement we can only supply copies through the post. Readers who receive their copies in this way will greatly assist our Publishing Department by informing their horticultural friends that copies of our issues for May 8, May 15 and May 22 will be forwarded on receipt of the usual amount (7d. per copy).

Our Supplementary Plate. — The beautiful Orchid figured in the Supplementary Plate accompanying the present issue—Odontoglossum White Admiral—was awarded a First-class Certificate by the Royal Horticultural Society when exhibited at Vincent Square, on May 5, 1925, by Sir George Holford. We understand that the parentage of O. White Admiral is unknown, but descent from O. Pescatorei is assumed. The petals are pure white and the sepals white with a light flush of soft rose; the white lip has a golden crest and a blotch of rich red-brown. Both in form and substance this Odontoglossum ranks with the finest of white-flowered hybrids, and under Mr Alexander's skilful cultivation it produces large, graceful spikes in the Westonbirt collection.

Linnean Society.—The anniversary meeting of the Linnean Society, for the election of Officers and Council, will be held in the Society's rooms, Burlington House, on Tuesday, May 27, at 5 p.m. The meeting will be followed by the Annual Official Dinner at Stewart's Restaurant, Old Bond Street, at 7.30 p.m., when Dr. A. B. Rendle will preside.

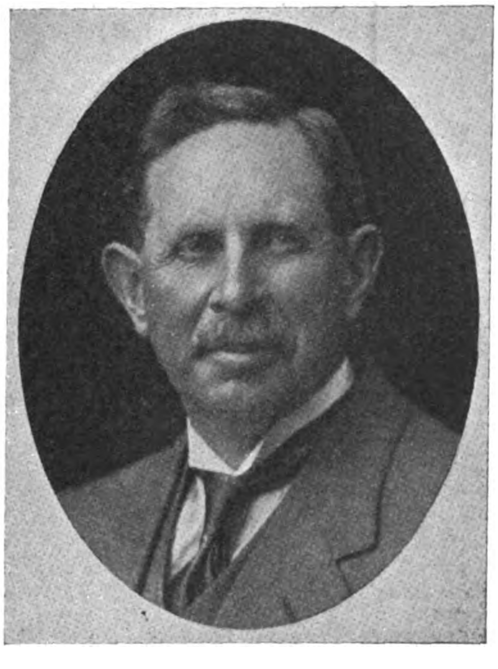
Harrogate Spring Show Abandoned.—The Rev. J. Bernard Hall informs us that the North of England Horticultural Society has decided to abandon the Spring show which was to have been held at Harrogate on May 27 and 28. This decision was reached as a consequence of the uncertainty of transport facilities and the postponement of the Chelsea Show.

Kew at Whitsuntide.— Given fine weather, it is anticipated that large numbers of the public will visit the Royal Botanic Gardens, Kew, during Whitsuntide, where they will find much of beauty and interest. "Lilac Time" has come and gone at Kew, and the spring bulbs are over, but their place has been taken by many other flowering shrubs and plants. Some of the fully-open Rhododendrons in the Dell were recently damaged by the unusually inclement weather, but there are still many beautiful hybrids in flower, and in the near-by Azalea garden the fragrant Ghent and glowing Mollis Azaleas are charming and beautiful. Fine examples of the lovely, sweetly-scented Rhododendron decorum are at their best near King William's Temple, where there are other interesting species, and the huge specimens of Arbutus are also flowering with great freedom. While the "May Trees" of the woodlands and hedgerows have nearly finished flowering, there are many American and other Thorns now in full bloom at Kew, and even more beautiful are the trees of the hybrid Crataego-mespilus grandiflora, which ranks amongst the very best of the hardy flowering trees of medium size. The Horse Chestnuts are retaining their majestic beauty well over Whitsuntide, and the weather, though unseasonable, has given a long season to the myriads of Bluebells. The Rock Garden at Kew is, if possible, even more popular with holiday visitors than with the lover of alpines, and here they will find an almost embarrassing number of floral beauties to enchant them. The northern end of the Rock Garden, which has recently been over-hauled and re-arranged on admirable lines, is fast becoming filled with valuable, interesting and beautiful alpines. The remainder of the Rock Garden is in first-rate order, and the early promise of beauty is continued. Even those who, with no knowledge of plants, simply walk through will not fail to be arrested by the masses of Aubrietias, Trollius, Primulas, hardy Orchids, Dianthus of many species, Iris setosa, and the tumbling masses of Iberis sempervirens. The beauty of the herbaceous garden comes later, but no plant lover should fail to visit the Alpine House there, which has been especially beautiful during the past four months, and still contains many excellent plants. To mention only a few, there are Silene Hookeri, of delicately beautiful pink colour; Roscoea Humeana, bearing large flowers of uncommon shape and rich violet-purple colour, while the graceful Lilium tenuifolium is opening its first flowers, and there are still many pans of dwarf Phloxes and Cyclamens. The Conservatory, officially known as No. 4 House, continues the best traditions of Kew, and is filled with a great variety of well-grown plants. The chief are Nicotiana Sanderae, Alonsoa incisifolia, Schizanthus hybrids, Strelitzia Reginae, Lilium longiflorum multiflorum, Gloxinias, Carnations, Stocks, Calceolarias—both the large-flowered hybrids and some lovely cana hybrids—Begonias of various types and still a few of the splendid Hippeastrums, which were so largely and so well displayed a month ago. In its appointed house the Victoria regia is unfolding its immense floating leaves, and there is a fine specimen of Vriesia Regina, a large, tropical Bromeliad, with a tall, erect Pitcairnia-like inflorescence. The Water Lilies in the house next the Palm House are amongst the best features of Kew, and there are many Orchids in bloom in the Orchid houses.

Cancellation of an R.H.S. Fortnightly Show.—Owing to the postponement of Chelsea Show until May 25, 26 and 27, there will be no show or meeting at Vincent Square on June 1.

Land Drainage.—It is estimated that of our 27,000,000 acres under crops and grass in England and Wales, at least 1,200,000 are in areas which are waterlogged, and another 500,000 acres which are capable of being improved by drainage operations. These areas include some of the richest land of the kingdom, comprising as they do a good deal of alluvial soil in the valleys and estuaries of our larger rivers. The loss to the nation caused by this state of things is put at £18,000,000 a year in food values alone. If land is allowed to remain wet and cold, the germination of seeds and the ripening of crops are delayed; in fruit plantations the danger from spring frosts will continue to be intensified, and everywhere on wet lands the length of time for seasonal cultivation is limited. This last factor is a very important one to the large number of gardeners and small growers who find that they cannot work their land early enough in the year to take proper advantage of the early markets, or late enough to sell their produce in the autumn. Then, also, the serious waste of manures and fertilisers on badly-drained land has to be considered. For the past three or four years the Government has assisted land-drainage schemes by using the unemployed and the unemployment grants on them during the winter months. A good deal in the way of protection of land against inundation, as well as in the improvement of drainage, has been effected by these means. The unemployment grants for the purpose have, however, now come to an end, but the Ministry of Agriculture has obtained Government sanction to continue to assist this object, apart from the question of relieving unemployment, for another five years.

Mr. David Tannock.—Mr. D. Tannock, Superintendent of Gardens, Reserves and Plantations under the Municipality of Dunedin, is a native of Tarbolton, Ayrshire, and commenced his gardening career in 1889 by serving an apprenticeship in the gardens of Colonel C. M. King, Autermony, Stirlingshire, where his uncle, Mr. Andrew Tannock, was head gardener. After finishing his apprenticeship he worked for some time at Pollock and Ralston. While at Pollock he attended the evening classes in botany, agriculture and chemistry at the Glasgow and West of Scotland Technical College. In 1896 he obtained an appointment at Kew, where he was employed for three years, part of the time as sub-foreman under the late Mr. William Watson. While at Kew, Mr. Tannock was Clerk of the Lectures and Secretary of the British Botany Club. In 1899 he was chosen by Sir Daniel (then Dr.) Morris to go with him to Dominica, West Indies, as officer in charge of the Agricultural School. In this position he remained for four years, when he was recommended by Sir William Thiselton-Dyer for the position in New Zealand which he still holds with so much credit to himself, to British gardening, and to the entire satisfaction of the authorities at Dunedin. In addition to official horticultural activities, Mr. Tannock finds time to deliver important lectures, and contribute weekly articles on gardening to two of the leading newspapers—one in Christchurch and one in Dunedin. He is also the author of several books on gardening in New Zealand. He has been responsible for the laying out and planting the grounds at the New Zealand and South Seas Exhibition. He has also planned and carried through valuable afforestation work which is best described in the words of Captain McIntosh Ellis, Director of Forestry, in a lecture at the recent great exhibition:—"The citizens of Dunedin are to be congratulated on the policy of expansion with reference to the city forest plantations. Your Corporation, with its 3,000 acres of growing plantations, and with the proposal to plant up a further substantial acreage in and contiguous to the city and in the Waipori watershed, is in the front rank of those Corporations in the Empire possessing communal forests. I have visited these plantations, and can say without hesitation that there are none better. The time will soon come when the net revenue from these valuable plantations will be greater than from all your other public services combined. Keep up the good work until you have established a city forest of at least 30,000 acres!"—a striking testimonial to Mr. Tannock's work and worth.


MR. DAVID TANNOCK.

New Agricultural Mart at Chicago.—A new building, the American Agricultural Mart, is being erected at Chicago to provide permanent headquarters for agriculture and its manifold allied interests. The building, which will include meeting halls, arena, and an exhibition space for live-stocks shows, will cover five acres of ground, and will be the largest of its kind in the world, having approximately 58,000,000 cubic feet of space. The total amount of floor space available for letting will be over 2,700,000 square feet. The height will extend to eighteen stories, dominated by an impressive tower about 600 feet high. Plans are completed for the erection on the tower of the world's largest broadcasting station. The exhibition floor will be completed in time for the National Dairy Show in November, 1927.

Bodnant Gardens Successes at the Rhododendron Show.—Lady Aberconway and the Hon. H. D. Maclaren were especially successful exhibitors at the recent Rhododendron Show, of which a report appeared in our issue of May 1, and illustrations in the issue of May 8. The exhibits from Bodnant won the Royal Horticultural Society's Amateur Challenge Cup, the R.H.S. Gold Medal, six first prizes, three second prizes, and the special award for the best plant in the show—a capital record.

Antwerp Horticultural Show.—The usual monthly meeting of the Société Royale d'Horticulture et d'Agriculture d'Anvers took place at Antwerp on May 9. A number of fine exhibits were sent by local growers, including Orchids and Hydrangeas from M. John Janssens, Mariaburg; Roses from M. Van de Velde, Vieux Dieu; Carnations from M. Emile Draps, and Spiraeas from the Municipal Nurseries.

The R.H.S. Amateur Show.—Although it was found necessary to postpone the R.H.S. Spring Show for a week, there will be no alteration in the date of the Amateur Show which, as already notified, will be held at Vincent Square on June 22 next. We understand that while there has been a large demand for Schedules of this show, copies are still available. Entries should reach the Secretary, Royal Horticultural Society, Vincent Square, London, S.W.1, not later than by first post on Tuesday, June 15, and the authorities would be assisted if intending exhibitors would send their entries as much before the closing date as possible. Classes are provided for amateurs of all kinds, and it is to be hoped that full advantage will be taken of this opportunity to provide a show worthy of the famous gardens of our country.

Appointments for the ensuing Week.—Tuesday, May 25: Royal Horticultural Society's Chelsea Show (three days); Newcastle Horticultural Mutual Improvement Society's meeting and lecture. Thursday, May 27: Paisley Florists' Society's meeting. Saturday, May 29: Glasgow and West of Scotland Horticultural Society's outing.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Mr. Groom's Tulips.*—These are just now in perfection, and we can promise our readers that a sight of them will amply repay a visit. The best bed, one hundred and twenty feet long, and containing not less than two thousand flowers, is as fine as we have ever seen it. We observed the following favourite sorts in good condition. Roses: Catalani, Countess of Wilton, Duchess of Sutherland, King of Saxony and Camuse de Craix. Bybloemens: Claude, Imperatrix florum, Michael Angelo, Parmegiano and Queen Victoria. Bizarres: Duke of Devonshire, Lord Sandon, Duke of Norfolk, Marshal Soult, Nourri-Effendi, Prince of Wales and Prince Albert. But in addition to fine old kinds the bed contains several novelties of merit. Dr. Horner (Bizarre) proves to be a first-rate second row flower, and we also remarked a very fine Rose, called Fleur de Marie in which the feathering is very boldly delineated. The less important beds in the open ground are also just now in full bloom and make a brilliant display. *Gard. Chron., May* 24, 1851.

ALPINE GARDEN.

SOBOLEWSKIA CLAVATA.

I RAISED plants of this alpine from seeds, but the result was such that I have no desire to repeat the venture. The seeds germinated well, and the seedlings throve and developed into mature flowering plants, but their effect was decidedly disappointing, although there was a certain amount of beauty in the one-foot-high spikes of pure white flowers above the heart-shaped leaves.

The plant has a silvery look about it which helps to modify the disappointing *tout-ensemble*. It appeared to thrive in ordinary garden loam but it neither added distinction to the border nor rock garden, and was rejected in order to give place to more attractive subjects. Another species, S. lithophila, I have never seen, nor have I known of seeds or plants being offered for sale. It is said to be a superior garden plant to S. clavata.

VIOLA BIFLORA.

ALL who have seen the exquisite little Viola biflora in its native habitat amid the alpine forests and in dark recesses are enchanted by its golden blossoms which lighten up the gloomy places. In gardens it should be grown in cool, rather dark, moist positions, and in such places it will seed freely and spread. The flowers brighten the dullest crevices of the rock garden, or some dark nook where the sun never enters, shining like golden stars above the twin, kidney-shaped, glossy leaves. I have just looked through several British catalogues in which a great variety of seeds of alpine flowers is offered but cannot see those of V. biflora quoted. I recommend the incorporation of a good deal of leaf-mould with the ordinary loam and a liberal dash of sand. A plant from a pot will give a good beginning in the cultivation of this little gem from the Alps. *S. Arnott.*

HARDY FLOWER BORDER.

ERYNGIUM.

THE distinctive appearance and colouring of many of the Eryngiums render them most desirable plants for the hardy flower border, and in some few instances, for the larger rock garden. They are easy to cultivate, and the inflorescences possess good lasting qualities. A good effect is secured by planting fair-sized colonies or clumps, and the quiet but nevertheless pleasing colours of some species will combine with many plants to give pleasing effects. The metallic blue of E. Oliverianum is always welcome in the blue border and is very pleasing when contrasted with white, grey or yellow, and this particular species, in addition to some few others, is quite a useful subject for exhibition purposes, a well-arranged vase lending distinct form and pleasing colouring to a collection of hardy border flowers.

These handsome plants thrive in sandy loam but will grow satisfactorily in any good garden soil; they enjoy a sunny position and resent frequent root disturbance. Propagation is effected by very careful division of the stools or by seeds: root-cuttings may also be employed as a means of increase.

A few of the best are E. Oliverianum, which grows from three to four feet in height and has flowers of a most attractive shade of amethyst blue. The Ivory Thistle, E. giganteum, has blue, ovate heads on four feet stems; it was introduced from the Caucasus in 1820.

E. amethystinum is a very pretty Sea Holly with light blue flowers. It grows about two feet in height. This species is generally distributed over Europe, and was introduced to cultivation so long ago as 1648.

E. alpinum, a beautiful blue-flowered species, ranges in height from one-and-a-half foot to two-and-a-half feet. It is a slender plant and very attractive when colonised freely in the higher parts of the rock garden. This also is a European species; it was known to cultivation in 1597, E. maritimum is indigenous to these islands but is not to be despised on that account, for the grey stems and foliage and very pale greyish-blue flower-heads combine to make a most effective subject for use in the wild or semi-wild garden.

E. planum has roundish flower-heads of blue on stems about two feet in height; this is another very old garden plant from eastern Europe; it was introduced in 1596.

E. pandanifolium is a veritable giant; being a native of Monte Video, it requires a somewhat sheltered position. The flowers are purplish, on very large panicles, and the stem attains a height of from ten feet to fifteen feet. It is a noble plant well worthy of cultivation. Other species worthy of attention include the pretty E. tripartitum, E. Bourgatii from the Pyrenees, E. dichotomum, and the recently-introduced E. prostratum, an interesting and very distinct plant for the rock-garden. A selection of these plants will do much to render a border beautiful and interesting from June to September and they possess the additional merit of being "easy."

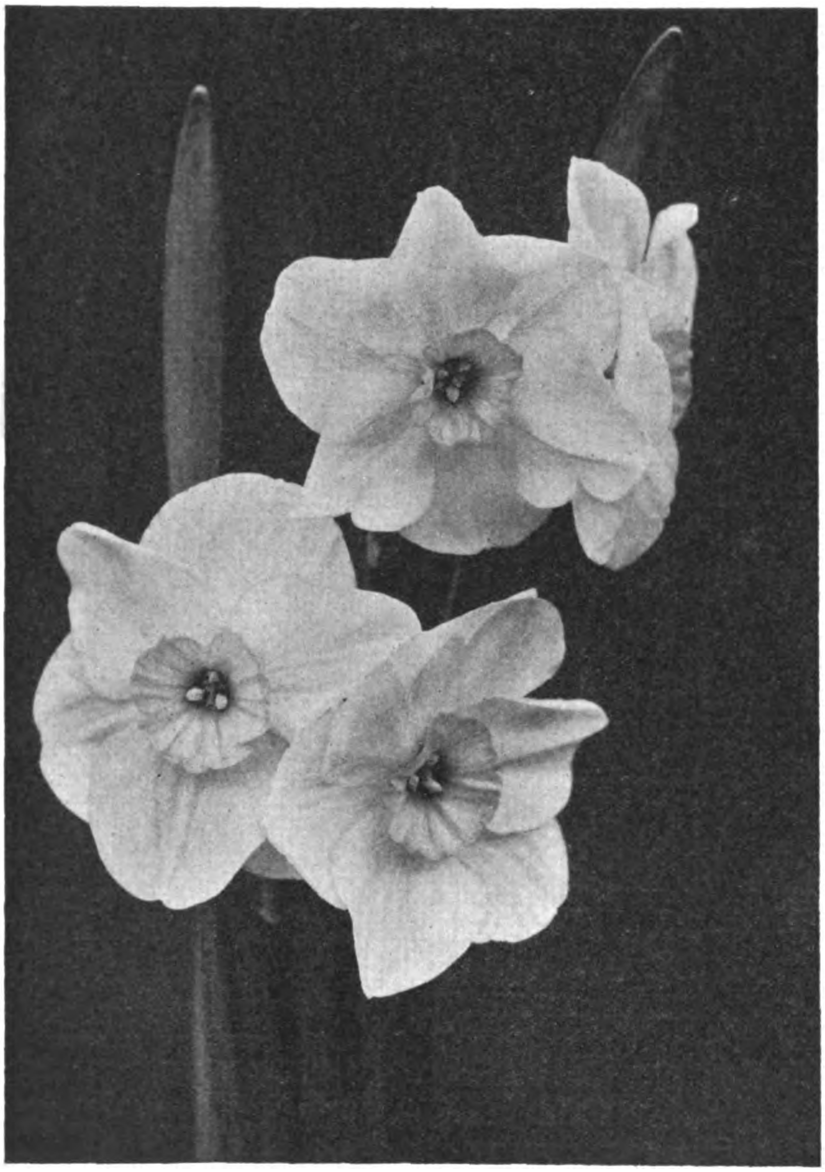


FIG. 183.—NARCISSUS BETHA.

R.H.S. Award of Merit, April 13. A Poetaz variety with sulphur-yellow perianth and deep yellow, orange-tinted cup. Shown by Mr. W. Welchman, Wisbech (see p. 295)

CENTAUREA MACROCEPHALA AND C. RUTHENICA.

THE bold and rigidly-carried inflorescences of C. macrocephala render this species a very effective plant for the large herbaceous border. It flowers in July, the flower-heads surmounting the handsome foliage. The leaves are oblong-lanceolate, undivided, slightly serrated and terminate in a sharp point. The stem is simple, hollow and thickened. The plant attains to a height of from three to four feet. It was introduced from the Caucasus in 1805 and is a valuable hardy, perennial, border subject.

C. ruthenica is about three feet in height; it is a native of the Orient and was first known in English gardens in 1806. It is a hardy perennial of graceful growth, producing its straw-yellow flower-heads in July. The leaves are pinnate and smooth, the leaflets sharply serrated.

These two plants thrive well in any ordinarily good soil, are first-rate hardy border plants, and provide yellow colouring at a period when it is not too plentiful.

Propagation of both species is easily effected by division of the roots, but frequent root-disturbance is not advisable, as although they are plants of simple culture, they require a considerable time to become established. *Ralph E. Arnold*

The Week's Work

THE ORCHID HOUSES.

By J. Collier, Gardener to Sir Jeremiah Colman, Bart., Gatton Park, Reigate, Surrey.

Cattleya House.—Many occupants of the Cattleya house, including species and hybrids, are now in flower; others will have passed that stage and have been recently repotted, consequently new roots are developing in the fresh compost. These last require a fair amount of moisture at the roots and this should be increased gradually as the young growth extends. No hard and fast rule can be laid down as to the best time for the repotting of these plants, as in a fairly representative collection flowers are produced at all seasons. Plants that have recently commenced to make new growths which have roots pushing from their base, will be at the most suitable stage for repotting. Any that require more root-room should be shifted into receptacles of a suitable size to accommodate them for at least two seasons. Care should be exercised in removing the plants from their pots; where roots are clinging to the sides so firmly that they cannot be removed without damage, the pot should be broken and removed in portions. Plants with the most vigorous habit of growth should be afforded more rooting space than less robust kinds. Previous to placing the plants into their new receptacles remove all decayed portions and useless pseudo-bulbs. Press the compost firmly amongst the roots and arrange the base of the plant nearly level with the rim of the pot. Osmunda-fibre, broken up rather roughly, with a small quantity of clean Sphagnum-moss and crushed crocks mixed, makes a suitable rooting medium.

THE KITCHEN GARDEN.

By F. Streeter, Gardener to Lord Leconfield, Petworth Park, Petworth, Sussex.

Thinning Seedlings.—The thinning of seedling vegetables is one of the most important details in successful kitchen gardening. The operation should be carried out in several stages, and the first thinning should be done so soon as the young plants can be conveniently handled. Carrots and Parsnips should be partially thinned. Early Nantes and similar varieties of Carrots need a little thinning, leaving the plants about two inches apart. Turnips and Spinach should be thinned to nine inches to a foot asunder. Main crop Onions should not receive too severe a thinning; the object to be attained should be a good crop of medium sized, well-ripened bulbs. Beets should be allowed a space of twelve inches apart. Where they are planted in special holes for exhibition, roots retain only the central plant in each station. When the thinning is finished, give the rows a liberal dusting of soot, and stir the soil with the Dutch hoe, leaving everything fresh and clean.

Brussels Sprouts.—So soon as the ground is in good condition and the earliest sowings of Brussels Sprouts are ready for planting permanently, the seedlings should be placed in their final quarters. See that the ground is firm and level and mark out the rows at three feet apart, allowing a space of two feet six inches between the plants in the rows. Lift the roots with a good ball of soil and give them a copious watering should the weather be hot and dry. Continue to prick out the seedlings of late sowings as quickly as possible on a spare piece of ground.

Dandelion.—Where salads are required in quantity during the winter, the broad-leaved Dandelion is exceedingly useful when perfectly blanched. Sow the seeds in shallow drills made in deeply-dug ground, and so soon as the seedlings are large enough to handle thin them to twelve inches apart, and keep the ground free from weeds.

Frame Cucumbers.—When frames become vacant they should be relined with long stable litter and hot beds, formed of three parts leaves to one of litter, should be placed in readiness for growing a batch of Cucumbers. Place about two bushels of soil in the centre of each light and set two plants in each frame, one facing north and the other south. Keep the plants well-syringed on sunny days to maintain a moist atmosphere.

PLANTS UNDER GLASS.

By John Coutts, Assistant Curator, Royal Botanic Gardens, Kew.

Eustoma Russellianum (syn. Lisianthus).—Seeds of this beautiful greenhouse plant should be sown about the middle of May. Although generally—and not without reason—considered to be extremely difficult to cultivate successfully, this Eustoma is so beautiful and remains in flower such a long time that no trouble the skilled cultivator can bestow on it should be considered wasted. The fine seeds should be sown on the surface of light, sandy compost, which should have been watered some hours previous to sowing. Cover the seeds with a light sprinkling of clean sand, place a piece of glass over the seed-pan and keep it shaded until germination takes place. If it is necessary to afford water the seed pan should be stood in a shallow vessel of water. The seeds should be germinated in an intermediate temperature, but subsequent cultivation is best carried out in a cool greenhouse, pricking out the seedlings into well-drained pans, in a compost consisting of one-half loam, and the other half of well-decayed leaf-soil or peat, with enough sand to render the whole porous. When large enough, transplant the young plants into thumb pots, using more loam in the compost as the plants increase in size. The chief aim during the first season should be to secure a large, healthy rosette of leaves. If the seeds are sown too early or the plants are grown in too high a temperature, this aim will be defeated, as the plants will attempt to flower and thus spoil the display for the following season. Having been brought safely through the winter they should be ready for potting during the spring. In a batch of seedlings some plants will have rose-coloured and a few white flowers. If it is desired to retain any colour variety the plants must be propagated by means of cuttings which root readily in a close case or under bell glasses. Cool greenhouse treatment is all that is necessary; in fact in the south this species may be stood out of doors and will flower over a long period in the open. Careful watering is very essential at all times, and attacks of thrip must be guarded against.

THE FLOWER GARDEN.

By F. C. Puddle, Gardener to Lord Aberconway, Bodnant, Taly-Cafn, North Wales.

Biennials and Perennials.—Seeds of many biennials and perennials may be sown at the present time, including Sweet Williams, Canterbury Bells, Aquilegias, Chelone barbata, Lupins, Delphiniums, perennial Asters and Phloxes. It is the usual practice to sow many of these subjects under glass in early spring, as larger plants may be produced in this way and many of them induced to flower in the autumn. Owing to pressure of work or lack of space there is always a possibility of delay in pricking out of the seedlings, with a consequent check to growth; in this case the sowing may be deferred until a later date, as the requirements of the young seedlings may be more readily attended to after the rush of spring work and bedding-out is over.

Summer Bedding.—The time is fast approaching when the more tender flowering plants may safely be planted out, and beds and borders should be prepared in readiness for the reception of their summer occupants. As the plants used for spring bedding lose their beauty, they may be transferred to the reserve garden. Polyanthuses, Daisies, Aubrietias, etc., should be divided and replanted in a cool, semi-shaded border, where they will grow in readiness for furnishing the beds next autumn. May-flowering Tulips and other bulbs which have to be lifted at the present time to make way for summer bedding do not, as a rule, flower satisfactorily the following season, but if they are planted in the reserve garden for a year they will make reliable bulbs for the following season's bedding, in addition to furnishing a few flowers for cutting. If time and space permits, they may be planted forthwith, in rows nine inches apart and four inches between the bulbs, or they may be laid in the soil until the foliage has ripened, when the bulbs may be lifted and stored. In the latter case care should be taken that they are harvested immediately ripening is completed, for if this is delayed the bulbs will commence to make new roots and lifting is then very detrimental to them. When digging the beds for replanting, it is advisable to incorporate some leaf-mould or well-rotted manure with the soil; this is especially necessary in the case of beds which have contained Wallflowers, for in common with most members of the Cruciferae, they are gross feeders, and exhaust the soil.

FRUITS UNDER GLASS.

By T. Pateman, Gardener to Sir Charles Nall-Cain, Brocket Hall, Hertfordshire.

Early Figs.—Trees planted out and growing in borders, which were started into growth early in the present year are now ripening their first crop of fruits, and it is at this stage that a little extra care must be exercised with regard to the watering of the border. It is not wise to use more water than is actually needed to keep the foliage from flagging, but at the same time trees bearing a second crop of fruit must receive sufficient moisture to keep them growing steadily during the time the first crop is being matured and gathered. Discontinue feeding the trees during the time the fruit is ripening, but once the first crop is over the borders should receive applications of liquid manure or some other suitable fertiliser recommended for Figs. Should the border be dry give the soil a thorough watering. A small dressing of lime will also be found beneficial to the trees and will tend to sweeten the border. Syringing should be discontinued during the ripening period, but a heavy syringing should be given so soon as the fruits have been gathered, to thoroughly cleanse the foliage and remove any insect pests that may have taken advantage of the drier atmosphere.

Later Figs.—Trees growing in a later house will need attention with regard to the tying in and pinching of the young shoots. This operation should extend over a considerable time so as not to check root-action. Do not hurry the trees during the flowering period but admit air freely whenever congenial outside conditions permit. A minimum night temperature of 60° should be maintained at this stage, with a corresponding rise during the day, but so soon as the flowering period is over and the fruits are once again swelling, the borders should be given a top dressing of farmyard manure followed by a thorough watering; failing this, the trees should be assisted by applications of some approved fertiliser. Remove badly placed fruits but defer the final thinning until those likely to make the best progress can be detected.

HARDY FRUIT GARDEN.

By W. Auton, Gardener to Viscount Elveden, Pyrford Court, Woking, Surrey.

Gooseberries.—To produce dessert Gooseberries of high quality good cultivation is necessary, and now that the berries are swelling fast regular attention should be given to the bushes. The finest fruits are usually gathered from cordon-trained trees, where light and air have free access to every branch, but good fruits may also be obtained from bushes if details of cultivation are given due consideration. Nothing is more helpful to the plantations than a mulch of good, rich manure, but where this is not practicable the roots should be fed judiciously fed by other means, and occasional supplies of liquid manure are highly beneficial. Superfluous growths from the centre of the bush should be removed entirely and the pinching of side-growths practised to enable the sun's rays to reach the crop. If the crop is very heavy and especially fine fruits are desired the berries should be thinned so soon as possible. The removed berries may be used for culinary purposes. At this season of the year Gooseberry and Currant bushes often suffer from the attacks of caterpillars, which, if left to themselves, soon strip the bushes of foliage, leaving only the skeletons of the leaves to show where they have been. The bushes should be sprayed with a suitable wash so soon as the pest appears, but where attacks are anticipated a good preventive measure is to dust the bushes with dry lime and soot.

Vines.—Where Vines are trained on walls growth will now be sufficiently advanced to enable the grower to carry out the final disbudding. The number of shoots to leave depends somewhat on the space available, but, generally, they should be reduced to one on each spur, retaining the one which shows promise of bearing the best bunch of fruit. Syringe the foliage late in the afternoons to keep red spider in check, and if mildew appears dust the branches lightly with flowers of sulphur.

Aphis.—The growth of vegetation on the whole has been slow during the past fortnight, and it is generally during periods of slow growth that infestations of insects become most persistent. Where possible, frequent syringings with clear water are a first-rate preventive, but spraying with an insecticide should be practised immediately the aphis appears.

FOR NORTHERN GARDENERS.

By A. T. Harrison, Gardener to the Marquis of Ailsa, Culzean Castle, Maybole, Ayrshire.

Primulas, Cinerarias, etc.—Seeds both of Primula sinensis and P. malacoides should now be sown to provide plants for flowering next winter and spring, also seeds of Cinerarias, Calceolarias, and Browallia elata major, according to requirements. Where only a limited number of each is required, a pinch of seeds may be sown of each kind, using five-inch pots and an ordinary compost of loam, leaf-mould and sand. Cover the seeds lightly and place the seed-pans in a temperature of 55° to 60° until germination has taken place, when the pots should be removed to cooler quarters and the plants grown on without much fire-heat. The Stellata section of P. sinensis provides a useful range of free-flowering plants, among the best being the varieties Coral Pink, Vesuvius, Ruby, and Pale Blue.

French Beans.—The first sowing of French Beans may soon be made on a warm border; earlier sowing of these tender vegetables outside is not recommended, as from experiments carried out some years ago, I proved to my own satisfaction that from the third week in May to the middle of June was the best time for sowing in our northern districts; any sown before that time were patchy in the rows, and more or less a failure, while the later sowings made rapid progress and soon passed the others, producing four or five times the amount of succulent pods.

Hoeing and Staking.—Use the Dutch hoe freely between all growing crops, as apart from the killing of innumerable tiny seedlings of weeds, the soil is aerated by its use and prevented from cracking in very dry weather. If this implement or its more up-to-date counterpart, the wheeled Planet Junior hoe, is used to stir the surface soil, the loose soil acts as a mulch which conserves the soil moisture. Staking of successional rows of Peas must be attended to in good time, and in this matter, as in so many others, it is better to be a few days in advance of actual requirements than one day late; this work is most expeditiously performed when the seedlings are about three inches high.

INDOOR PLANTS.

SOME BERRIED PLANTS.

The cult of the berried plants is not a striking feature of indoor gardening at the present time, although Solanum capsicastrum and S. pseudocapsicum are popular market plants and grown in quantity by the trade for sale at the Christmas season. Seeds of these subjects should be sown in heat early in the year and the plants kept growing freely during the summer. When the seedlings are two inches high the point of growth should be pinched. They require a rich, loamy compost, but should not be overpotted, a receptacle five inches in diameter being suitable for a yearling plant. Solanums may be grown in cold frames or stood in a sheltered, sunny position out-of-doors in summer and the roots should be supplied with weak liquid manure.

The bright, coral-like berries of Ardisia crenata retain their colour and freshness for several months. It is a slow growing subject and somewhat stiff in habit. The crenulated leaves are leathery in texture and of a glossy green colour. When young the plants should be grown in a warm, moist house to encourage quick development, but removal to cooler quarters is desirable when the fruiting stage is reached.

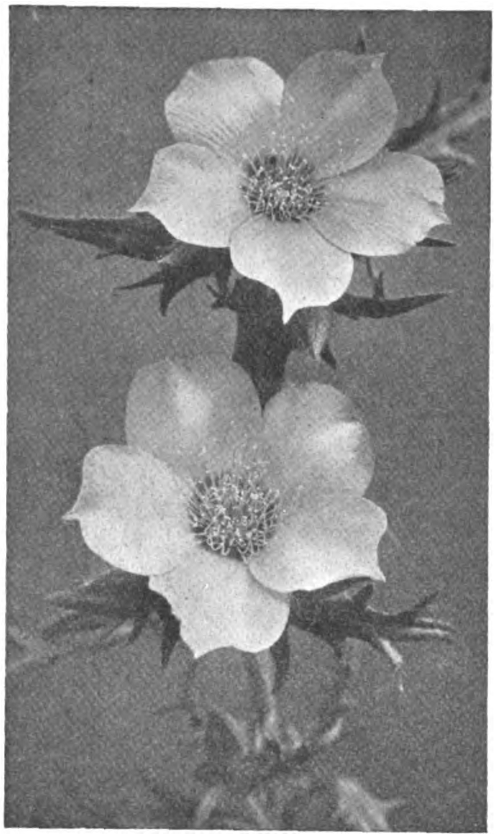


FIG. 184.—MENTZELIA LINDLEYI.

When the arching sprays of Fuchsia parviflora are roped with jet-black fruits, few berried plants are more effective. This species forms a much-branched bush, about two feet high, and should be grown in an airy, sunny, greenhouse. The trailing F. procumbens is a better known species, and when grown in four-inch pots and the growths are laden with large, crimson berries it makes an attractive edging for the greenhouse stages during the winter months.

Rivina humilis, although a warm greenhouse perennial may be treated as an annual by sowing the seeds early in the year and growing the seedlings in pots or pans, placing several plants in each receptacle. The lucent berries, swinging on long, two-ranked racemes, are like stained glass.

The berries of the tropical, variegated Schismatoglottis acuminatissima are borne in sessile clusters at the apex of a fleshy stem some few inches in length. They are crimson, oval in outline, and about half-an-inch long. This Aroid is bushy in habit with thick, fleshy stems, and it sends out numerous underground growths. It may be readily raised from seeds.

Nertera depressa is a charming prostrate plant, forming a dense carpet of creeping stems clothed with small, green leaves. The solitary berries at the apices of innumerable slender stems often completely hide the foliage. It may be grown in pots or pans and increased by dividing the old plants in spring and growing them in a little warmth until they are established and growing freely. N. depressa is almost hardy, indeed, there is a loch-side garden in the west of Scotland where it has become naturalised in the short grass of the lawn. *Fred W. Jeffery.*

PRIMULA SINENSIS.

Varieties of this plant are very popular for greenhouse decoration during the winter and early spring. If not already done, seeds should be sown forthwith to obtain an early flowering batch of plants. Although the large-flowered varieties find many admirers, the Stellata forms are the most graceful and useful for decorative purposes. The seeds should be sown in a light compost consisting of one-half good loam and one-half leaf-mould, with sufficient sand to render the soil open and porous.

The seed is very irregular in germinating and should be sown very thinly; this allows of the more forward plants being removed from the seed-pan without disturbing the smaller seedlings.

After watering the soil, the seed-pan should be covered with a sheet of glass and kept shaded until germination takes place. During the summer the plants should be grown in a low pit or in a cold frame, potting them on as they require it until they are in five-inch pots. As they increase in size, less leaf-soil should be used in the potting compost, but this will be determined very largely by the character of the loam. During all stages of the plant's cultivation old mortar rubble may be used in the compost. *J.*

FUCHSIA PARVIFLORA.

This Fuchsia is both interesting and pretty and an excellent plant for a cool house. The very small flowers are bright carmine with a prominent white stigmata; a well-flowered plant gives a very bright effect.

The growth is somewhat stiff and upright; the wire-like stems are furnished with very small leaves. This species thrives equally well as a pot plant or when planted out in a cool-house border; it flowers over a long period and is well worth cultivation. *Ralph E. Arnold.*

FLOWER GARDEN.

MENTZELIA LINDLEYI.

This delightful hardy annual (Fig. 184) is better known in gardens as Bartonia aurea, although at the present time it appears to have lost some of its former popularity. The plant grows about one foot high, has interruptedly pinnatifid foliage, and produces large, brilliantly golden yellow flowers. Mentzelia Lindleyi is a sun-lover, as are most other Californian plants, and this should be borne in mind when seeds are sown in the open or frame-raised seedlings are planted out. The species is not only a useful one for the front of a flower border or bed, but is extremely useful for filling vacant spaces that may have occurred in a sunny part of the rock garden. On the whole, the best plan is to sow the seeds where the display is desired, as transplanting is not always attended with success.

The generic title of Bartonia was used to commemorate Dr. B. S. Barton, a professor of Botany at Philadelphia, while Mentzelia—the name now regarded as the correct one—commemorates Christian Mentzel, a German botanist who lived 1622-1701. Mentzelia Lindleyi is recorded as having been introduced from California in 1834.

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A TRAVELLER'S OBSERVATIONS.

HORTICULTURE IN NEW ZEALAND.

THE early settlers in Christchurch and its neighbourhood must have had the spirit of gardening strongly developed. The results of their well thought-out work and planting are seen everywhere, both in forestry and general gardening. The botanical gardens and public domain cover an area of nearly 500 acres within the city boundary. They are under the charge of Mr. James Young, a native of Lanarkshire, Scotland. He came to Australia in 1887 as instructor at the State Nursery, near Melbourne, and remained in the service of the Government of Victoria for fifteen years, and then came to Christchurch.

During Mr. Young's tenure of office at Christchurch, great improvements and big changes have been made. The features of the gardens are the great open spaces and fine, large specimens of ornamental and forest trees, well and widely spaced to show the true value of every tree. The result is that as fine specimen trees are to be found here, of many kinds, as anywhere else south of the equator.

The Rose garden is a striking feature, and on rather light soil; it demonstrates to the inhabitants of Canterbury the sorts that do best under such conditions, which is exactly what every trial garden should do. Altogether, five hundred varieties have been tested, and beds in the grass have been filled with fifty or sixty of those which have done best. Several Lily ponds are well stocked with many forms of Water Lilies, the margins being filled with Japanese and Bearded Irises. One fifty-acre block, which is like a horse-shoe in shape, is surrounded by a beautiful river, the margins of which are planted with Weeping Willows, fifty feet high, the lower branches drooping to the water—a perfect picture.

The parks are well planted with English Beech, Elm, Ash, Oak, Birch, Sycamore, and Chestnut (Horse and Spanish), but the most beautifully-formed tree is Quercus Cerris, the Turkey Oak. This promises to be the favourite Oak for planting in Canterbury. Bedding is effectively done in these gardens in the British fashion: one most effective plant was a seedling bedding Pelargonium with a large, rather open flower, not unlike an Azalea in shape, of a very bright soft rose-pink shade. Sections of the garden are devoted to native trees and shrubs, and a fine bog garden adjoins these. Rhododendrons are grown in a long avenue and Mr. Young has many hundreds of his own seedlings from the best parents, and he is very proud of them. The beautiful double, white-flowered variety of Leptospermum scoparium illustrated in Fig. 187 was represented by several healthy specimens. A rock garden is in process of construction. Altogether, these Christchurch gardens are very fine and up-to-date.

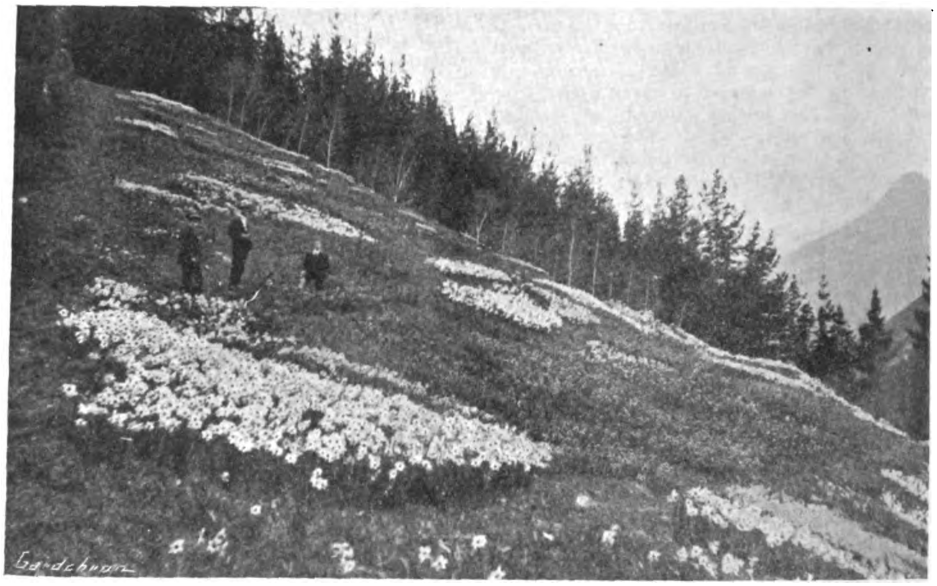


FIG. 185.—DAFFODILS NATURALISED AT OTAHUNA, CHRISTCHURCH, NEW ZEALAND.

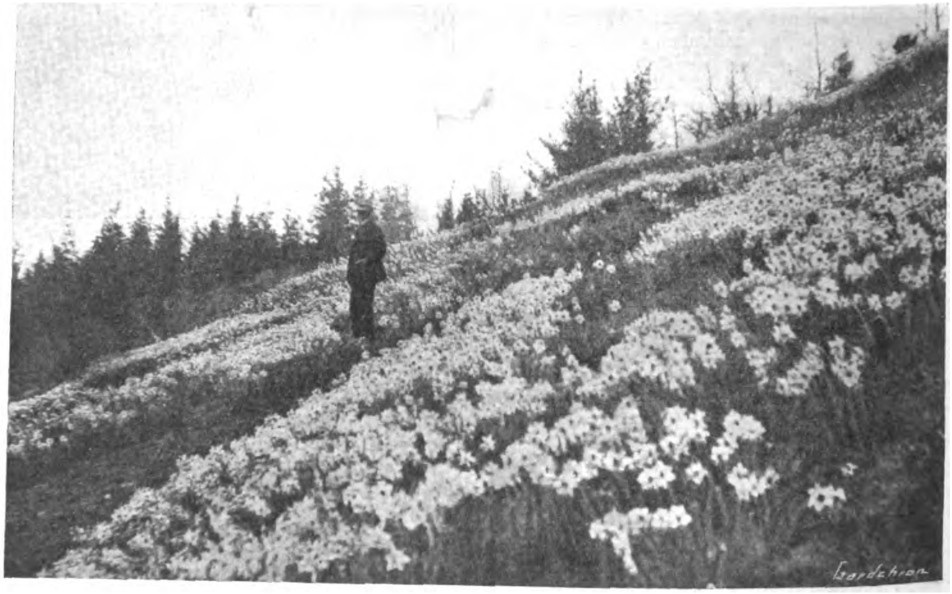
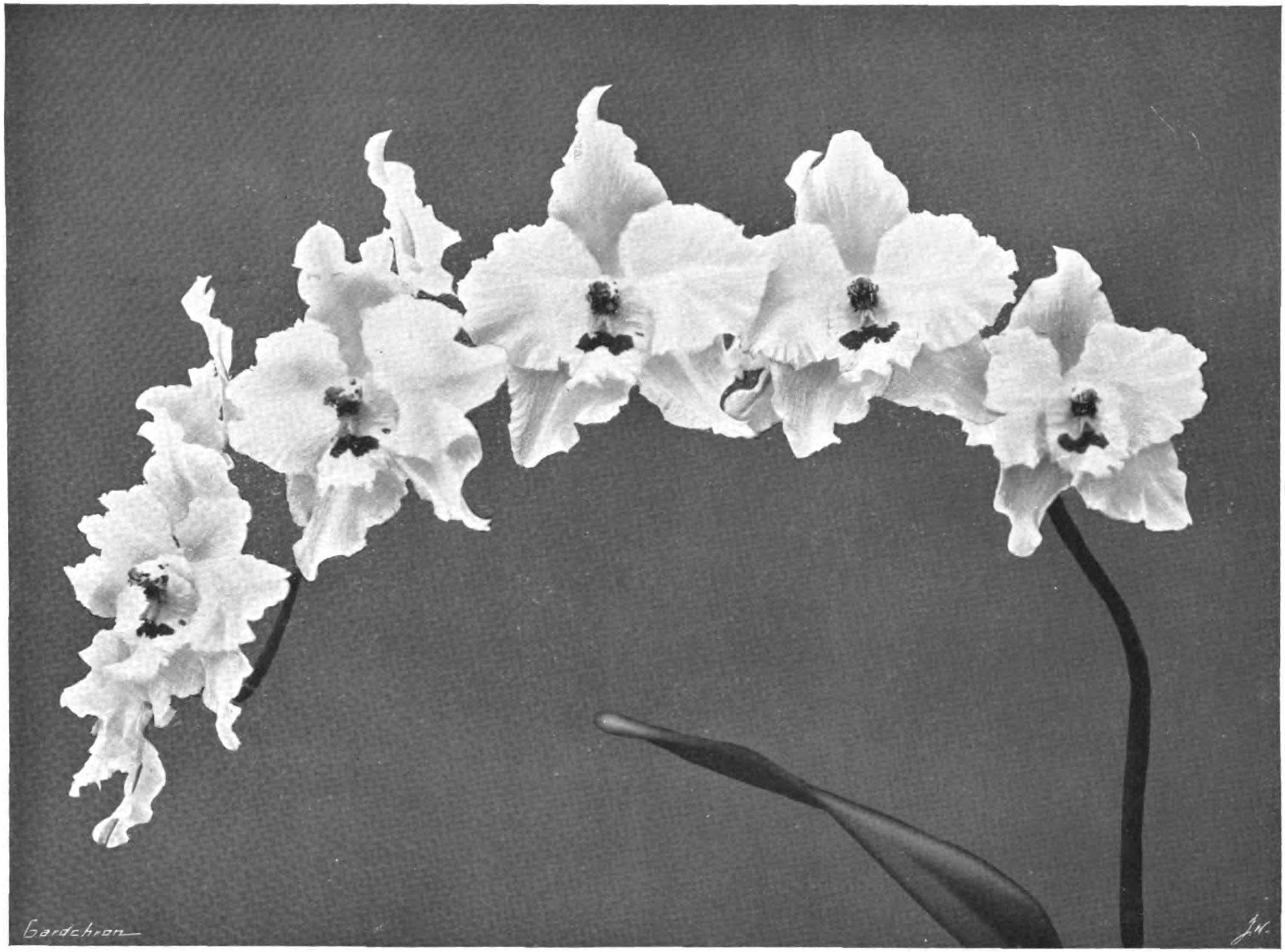


FIG. 186.—DAFFODIL-COVERED SLOPES AT OTAHUNA, CHRISTCHURCH, NEW ZEALAND.

MESSRS. NAIRNS' NURSERIES.

When driving around the city of Christchurch and its suburbs, Mr. Young took me into Messrs. Nairn and Son's nurseries and introduced me to Mr. Robert Nairn, the proprietor. I had seen few nurseries of note, either in Australia or New Zealand, and I was delighted to go over Messrs. Nairn's up-to-date place. The firm has, since it was established in 1879, always adopted the policy of importing the latest novelties in plants from all parts of the world, and I saw frames and houses filled with all kinds of clean-grown stock—Japanese Maples, Azaleas, Heaths, Conifers, Magnolias, Rhododendrons and Acacias were all strongly represented. Outside, one of the most remarkable groups was of standard Roses—fine stems, four to five feet (Dog Rose), over an inch in diameter and with grand tops—the number must have been at least 2,000, and the failures could not have exceeded five per cent. Dwarf and climbing Roses are grown in quantity and equally well done. Trees for ornamental and street planting are specialised in—those most adaptable and most in favour in New Zealand being Horse Chestnut, Spanish Chestnut, Lime, Elm, Hornbeam, Beech, Silver Birch and Oriental Plane, as well as Pyrus Aria, which promises to be one of the best for street planting



ODONTOGLOSSUM WHITE ADMIRAL.

purposes. Cypressus macrocarpa interested me very much, as here and in Dunedin I saw thousands of young plants in boxes, from which they are transplanted direct into the open when about a foot high. This Conifer is not only most graceful but most useful for shelter and invaluable for the farmer as it gives him timber, in ten years, suitable for fencing and rails.

Flowering and ornamental shrubs are features of the nursery, and I was told the stocks included the very best kinds and varieties procurable. It must be remembered that the range of subjects on account of the fine climate, is much wider than at home.

Popular flowers, such as Dahlias, Chrysanthemums, Gladioli, Delphiniums and Michaelmas Daisies are extensively grown but, of course, not in the quantities of the leading home-growers, as the outlet is not so large. In parting, Mr. Nairn, who must be a bit of a humorist, said, "Mr. Cuthbertson if you want to get on in this world you must keep in with the ladies and the newspapers." Pretty sound advice.

Painted up in Messrs. Nairn's potting shed is the following quotation from Cowper:—

"To study culture, and with artful toil,
To meliorate and tame the stubborn soil,
To give dissimilar yet fruitful lands
The grain, the herb, the plant that each demand,
There, these are arts pursued without a crime,
That leave no stain upon the wings of Time."

SIR HEATON RHODES' ESTATE AT OTAHUNA.

The day following, Mr. Nairn called at our hotel and took Mrs. Cuthbertson, Mr. Alister Clark of Melbourne—who is brother-in-law to Sir H. Rhodes—and myself to visit Otahuna. I had, of course, heard of Sir Heaton's great collection of Daffodils, and he gave me two photographs (Figs. 185 and 186) showing plantations on two of his hill-sides which made me regret I was not able to visit him in Daffodil time.

I asked Mr. Nairn to let me have a few notes about Otahuna, which he kindly did, and I add these with pleasure and without alteration:—

"Some twelve miles from the city of Christchurch, N.Z., happily situated among the hills, is the famous garden of Sir R. Heaton Rhodes, M.L.C. Some thirty years ago, this gentleman decided on making his home in the most favoured spot, and named it Otahuna. The foundation work embraced the making of numerous plantations which have now reached the stage when the saw mill may get busy, and where much timber is fit for marketing. This refers more particularly to Pinus radiata (or P. insignis), which in New Zealand grows rapidly, and at an early period is fit for market, the wood being in demand for fruit cases.

But the garden is the more important subject under consideration, and here the plant lover may find much to interest him. The collection of trees and shrubs denotes the fact that the whole horticultural world has been drawn upon to furnish the grounds. From Europe, Asia, Africa, North and South America and the uttermost parts of the earth, representatives of the vegetable kingdom have been brought together, and those from the temperate climes are finding conditions to their liking. Tropical plants are conspicuous by their absence, as Sir Heaton Rhodes makes no attempt to garden under glass. Magnificent Conifers and deciduous and evergreen trees have attained giant proportions, and flowering shrubs of the choicest kinds abound everywhere. A magnificent specimen of Crataegus Pyracantha horizontalis, with a head forty feet in diameter, attracts attention and much discussion. A splendid Calodendron capensis (the Cape Chestnut) is in full flower, and testifies to the favoured climatic conditions. Vitis Coignetiae and Vitis Thunbergii are represented by fully furnished specimens; the latter with magnificent leaves. Both species have sent out their long, climbing growths to a distance of forty feet, and give promise of an autumnal glory in the way of colour which will be worth a pilgrimage to see.

Another plant with coloured autumnal foliage worth noting is Pyrus discolor, which for intense depth of colour has few equals. It does better in Otahuna, however, than in most other spots. The Rhus and Cornus families are also well represented, and here again the autumn tones remain long in the memory of those who visit the garden. Scarlet and other Oaks attract attention. Among the best are Quercus conferta, a handsome specimen; Q. coccinea and Q. palustris, both magnificent specimens in the autumn; and Q. dentata, from Japan, with massive leaves which turn a golden-brown in the autumn. Acacias (Wattles) from Australia and flowering Cherries from Japan are finely represented, and in their season have many admirers.

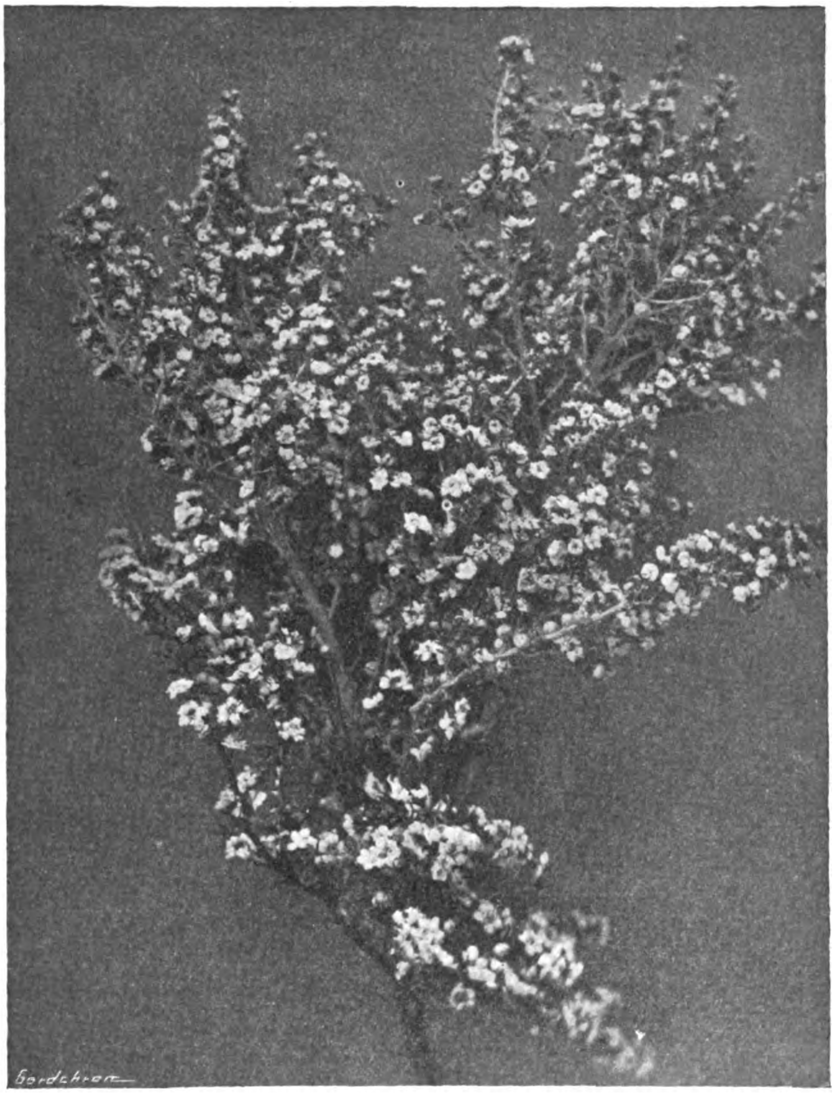


FIG. 187.—LEPTOSPERMUM SCOPARIUM VAR. LEONARD WILSON.

This white, double-flowered variety was found by Mr. Leonard Wilson on his property at Port Levy, New Zealand, and young plants are now growing in the Christchurch Botanic Garden.

There is a host of other trees and plants worth mentioning but space forbids, as justice must be done to Sir Heaton and Lady Rhodes' favourite flower, viz., the Narcissus. For many years past Otahuna has been the raising ground of many novelties of very great merit, some of which have reached Europe and are considered equal to the world's best. Credit at this point must be given the late Mr. A. E. Lowe, who for many years was gardener to Sir Heaton, and, with his employer, an ardent admirer of Narcissi. Mr. Lowe was recognised as a gardener above the average in intelligence, and proved the contention in his life's work, more particularly among the Narcissi, although his abilities were by no means limited to one class of plants. Otahuna in spring is a sight not easily forgotten. Everywhere Narcissi are to be seen in superabundance both in the garden and the paddocks. Not the common and everyday varieties, but thousands of blooms of the choicest kinds. Selected beds of seedlings with their parentage duly recorded have their place, and will be subjected to inspection from the critics when in bloom, and, if worthy, be rightly named and given their place when increased in number.

So quickly have their choice kinds increased that Sir Heaton Rhodes has disposed of large number of bulbs to those who are enthusiasts, and with the money has built up a sum of about £1,000 which he has handed over to the building fund for a public library in the district in which he resides. Many who are not in affluent circumstances and who possess the true spirit of gardening have received generous collections of the best known kinds from Otahuna, and as a result splendid exhibits of Narcissi are seen at the smaller flower shows held in the country districts." *W. Cuthbertson.*

NOTES FROM WISLEY.

THE best garden picture to be seen at Wisley at the present time is undoubtedly that provided by the Azaleas flowering in the wood, viewed from the top of the rock garden. From here one may see, through the bright, yellow-green of the young Oak leaves, a large expanse of multicoloured Azalea blooms, while in the foreground are bright patches of Genista hispanica and deep orange Wallflowers which provide vivid colouring of a similar nature to that seen in the wood. Of these Wallflowers, by far the most striking is a hybrid named Newark Park, beside which the orange flowers of Cheiranthus Allionii appear almost yellow.

From the same point, a good view may be obtained of large numbers of bearded Irises, planted on the slope, towards the fruit plantation. Some of these belong to the permanent collection formed from the trial which was carried out in 1916, while others are part of an existing trial which contains as many as eight hundred varieties. The growth made by the latter is remarkable, seeing that they were only put in as small plants about fourteen months ago. Most of the dwarf varieties have finished flowering, but a good white-flowered variety named Simplicity is fairly dwarf and still in flower. Many of the taller sorts are only just beginning to bloom. An exception, however, is Prince Victor, which has been in flower for some weeks, and although it is an old variety it is hard to beat for regularity and freedom of flower.

A curiously-coloured Iris which is just coming into bloom is Zwanenburg, the flowers of which remind one of a Cypripedium, having smoky-white standards and yellowish falls, veined and spotted with purple. Many attractive varieties are to be found among the smaller-flowered sorts, such as the pale blue Zephyr and Mrs. Allen Grey, the flowers of which are almost pink. A feature of the latter is a second flowering which will often occur in July. Madonna is another pretty Iris with lilac blooms, while Kharput and I. asiatica are handsome purple sorts.

Adjoining the Irises is a trial of Cistus and a collection of Helianthemums. Among the former the only plants at present in flower are those of Cistus Clusii, a compact-growing species with small, white flowers. Many of the Helianthemums, however, are in bloom, although not yet at their best. Considerable variation is seen in their foliage, and one of the best grey-foliaged sorts is H. Croftianum, with pink flowers, while dark green leaves and stout red flowering shoots are a feature of H. chamaecistus, the flowers of which are bright crimson. Among other red-stemmed kinds is Wisley White, which has also a red-veined calyx. One of the best double reds is Mrs. C. W. Earle, and a handsome, yellow-flowered variety with a large orange centre is named Orange.

More flowers are now being grown in the section which was until recently devoted to vegetables, and among them is a number of annuals such as Linum, Nemophila, Nigella, Lavatera and Viscaria which are now coming up strongly and should make a fine show this summer.

The plants in and around the ponds are now becoming a source of interest. The foliage of the Gunneras and of Osmunda is now expanding, and Saxifraga peltata, which has nearly finished flowering, is throwing up its umbrella-like leaves through drifts of Primula pulverulenta. Many plants have been added to those around the rock garden ponds, some of which are now in flower, including Asphodelus Balansae, a curious plant with yellow flowers and very narrow leaves, and Asphodelus ramosus, with white flowers and brown bracts. In addition to these are some handsome Camassias and plants of Anthericum algeriense. Belonging also to the genus Anthericum is the better-known St Bruno's Lily (A. Liliastrum). In the ponds themselves the leaves of many of the water Lilies are pushing to the surface above which are the white flowers of the Water Hawthorn (Aponogeton distachyum).

In the alpine house many Primulas are still coming into flower, such as P. Cockburniana and P. apoclita. The latter belongs to the muscarcoides group, and its violet flowers, although small, are rendered attractive on account of the bright green meal which covers the stems and clustered flower buds.

Among the shrubby subjects in this house may be mentioned Daphne rupestris grandiflora, Pentstemon Roezlii and Genista spathulata, a dwarf-growing, yellow-flowered Broom with a pendulous habit. The Geranium family is represented by G. Farreri with very pale mauve flowers that are large in comparison to the leaves, and by Erodium trichomanefolium. There are several species and hybrids of the encrusted Saxifrages in flower, such as S. cochlearis Snowflakes, and S. lingulata var. Lissadel.

Two useful little creeping plants now in bloom are Mazus rugosus, whose Periwinkle-blue flowers are suggestive of some large fly at rest, and Stachys corsica, with pale pink flowers; the latter does best on warm ledges. Another Corsican plant is the grey-foliaged Helichrysum frigidum, which is flowering exceptionally well this year. Here, also in bloom, is Campanula Allionii and a number of plants nearly related to the genus Campanula, such as Wahlenbergia serpyllifolia major, Edraianthus hybrids and Phyteuma comosum.

Several Vacciniums are flowering in the wild garden, notably V. corymbosum and the pink-flowered V. virgatum. while in the new shrub borders some plants of an unnamed Cotoneaster raised from seed sent to this country by the late Mr. Reginald Farrer are flowering well. The flowers are tinged with pink and emit a fragrance similar to that of Hawthorn blossom, which appears to be a great attraction to bees and certain flies.

The Apple and Pear trees which promise to bear a fair crop are now being sprayed with Bordeaux mixture for scab, and with lead arsenate for caterpillars. Some of the Rhododendrons have also been sprayed with lead arsenate on account of the weevil attacks which disfigure the foliage. Large numbers of leaf-roller moths (Tortrix rosana and other species) have been caught by means of a trap consisting of an ascetylene flare under which is a pan of water. This is placed among the trees at night and the moths attracted by the light fly into it and drop into the water. *J. E. Grant White.*

NOTES FROM A WELSH GARDEN.

ABUNDANT rain and an absence of scorching sun are a combination very favourable in May to a rock garden where the soil is light and gritty, for it means that the flowering season of most of the earlier things is so prolonged that these are still abloom when the later Saxifrages, Helianthemums and Dianthuses are well begun.

One of the more uncommon (but not new) plants which has bloomed well this spring is Geranium malvaeflorum (atlanticum), recently referred to in these pages. The stout, erect stalk, ten inches high, with its large, branching head of flowers carrying some thirty to forty buds is very striking. Individually the blooms are nearly as large as those of G. ibericum, the ground colour being a bluish-purple, veined with a darker hue. This interesting species seems to need only a dry period in late summer to ensure a thorough rest, but some root restriction appears to be an incentive to flowering. The late Mr. E. C. Buxton once told me that it was always most satisfactory with him when wedged between vertical slabs of rock. G. macrorrhizum, though known to our gardens for over three centuries, is not often seen, and the colour and size of its blooms may not compare with those of many others of the genus. But this plant, with its handsome foliage, eighteen inches high, curiously inflated red calyces and bushy habit always attracts attention. It is, moreover, very fragrant in all its parts with the true Geranium scent, and the leaves colour well in early autumn.

In a mixed border along with the foregoing is a form of Veronica gentianoides which came here labelled Letchworth variety. This is a fine, stately plant with spires of blossom nearly three feet tall, the individual flowers being much larger than those one usually sees and of a more decided blue. Among other plants of garden origin, Armeria Vindictive is not likely to be passed without notice, the blooms, which stand six inches above the dark green foliage, being a remarkably ruby-crimson. This variety is practically an all-season bloomer here. Cheiranthus alpinus var. Moonlight is yet another striking departure, the extraordinarily abundant flowers which cover the squat little eight-inch plants being such a vivid, luminous, sulphur-yellow that the varietal name is a particularly happy choice. This Wallflower and the lavender Cheiranthus linifolium make a most delightful colour combination.

Linum viscosum, which appears to appreciate some shade and cooler conditions than most of its kind, has put up several spikes of its lavender-blue flowers, but my plant has barely succeeded in attaining half the stature of twelve inches described by some authorities, not to mention the eighteen to twenty-four inches of others. Also, in a fairly cool border soil, Anemone palmata alba is abloom. Melittis Melissophyllum is close-by, its erect eighteen-inch leafy stems being adorned with large, pure white, pink-lipped flowers, handsome enough to make this Bastard Balm more popular than it is. Paeonia tenuifolia is, as usual, the first of its herbaceous kindred to give colour here, and its intense crimson goblets, with the bold centre of gold, are very attractive above the elegant leafage of this comparatively dwarf species.

Few groupings among smaller subjects have attracted more attention than a number of plants of Saxifraga nivalis, Elliott's variety, S. rotundifolia and Lomaria alpina. These, on a partly shaded bank near the water, with some mossy rocks for company, are delightful enough in themselves, but a clump of Mertensia virginica and a tall, large-flowered form of Saxifraga granulata among uprising native Ferns in the background have proved telling additions to the group.

With a few exceptions flowering shrubs have done excellently this spring. Azaleas have surpassed their customary prolificacy, even A. indica var. balsaminaeflorum (rosaeflorum) having crowded its prostrate twigs with the big, Camellia-like, salmon-red, double flowers. In spite of the hard winter Dendromecon rigidum had several of its lovely golden-yellow, Poppy flowers open in May's first week (the shrub not having been pruned back), and Solanum crispum was equally early. The soft, lavender-blue, orange-eyed flowers of the latter, with the pale yellow of those of Rosa Hugonis, the two shrubs being close to one another, have invoked much enthusiastic admiration from visitors. Another reputedly tender shrub which suffered not at all from last winter's frost, and which bloomed well throughout April, is Sophora (Edwardsia) tetraptera grandiflora, the pendulous yellow flowers of which are fully three inches in length.

The Judas Tree (Cercis Siliquastrum), a specimen about ten feet high, has borne a heavy crop of its lovely rosy blooms, and the old White Broom (Cytisus alba) has once again proved itself one of the best of all spring-flowering shrubs, its snow-white, abundant sprays being unsurpassed in elegance and airy grace. And what an admirable background it makes for the smoke-blue of Ceanothus thrysiflorus! Another Broom which always impresses me with its singular merit and beauty is C. scoparius pallidus, the Moonlight Broom. It has a more compact, sturdier habit than most of its kind, and the ivory of its large blossoms is a very enchanting hue among woodland green. Under similar conditions, with considerable shade if need be, there is also much charm in Halesia tetraptera, with its drooping, long-stalked bells of blush white.

Of the earlier shrubby Potentillas, P. Veitchii has been covered with its white flowers since the end of March, and always the first of the yellow-flowered bushes of this genus is a very dwarf one which came here labelled P. fruticosa argentea nana. This little variety is a delightful rock garden shrub; the green leaves are silvery with silky hairs, and the rich yellow flowers, as large as those of most of its kindred, are produced in succession almost all through the season.

One of the earliest and certainly the best of the Cotoneasters here, regarded as a flowering shrub, is C. hupehensis, the broad, fan-shaped branches being clustered with white flowers which are hardly less attractive than those of Hawthorn. This distinctive species, however, has not yet fruited in these gardens. A young plant of the double yellow Banksian Rose has commenced flowering on a west wall, and it is interesting to note that this plant proved quite indifferent to 20° of frost last winter, even the more tender extremities above the top of the wall being but little injured. Some Grevilleas have also put up a good claim to be considered hardy, both G. rosmarinifolia and G. sulphurea on a north-westerly slope and quite in the open, having been blooming freely during mild weather since last autumn. Neither of these was affected by frost. A small bush of Metrosideros robusta close-by the above was badly injured, and Eupatorium Weinmannianum, having for the third successive winter failed, will have to be written-off as too unreliable for further trial. Tricuspidaria lanceolata, which was well-budded in autumn is showing very few blooms, but otherwise it is hardy enough and a good north-side subject. *A. T. Johnson, Ro Wen, N. Wales.*

ABNORMAL WALNUTS.

At one of the meetings of the scientific committee of the Société Nationale d'Horticulture de France, Messrs. Vilmorin-Andrieux et Cie., showed a whole series of abnormal nuts of Juglans regia, from their Arboretum at Verrières, of which photographs are enclosed herewith (Fig. 188). Counting from left to right in the top row, No. 1 shows an abnormal nut with a single line of dehiscence; No. 2, an abnormal nut with three lines of dehiscence; and No. 3, an abnormal nut with four lines of dehiscence. In these cases the embryo generally appeared as a tri-cotyledon at the time of germination. Trees have several times been described which have presented this phenomenon regularly.

No. 4 is a nut with pellicular shell, indeed, the shell no longer exists, but is replaced by a membranous pellicle. Trees presenting this curious anomaly have been frequently mentioned, notably by Carrière (*Revue Horticole*, 1872), under the name of Juglans cordata tenerrima; "the fruit, deprived of its external envelope, had a suberous or parchmented endocarp, thin, often split or incomplete, so that in several places the cotyledons were showing."

Carrière also described (*Revue Horticole*, 1876, p. 329) another form under the name of Juglans regia suberosa: "The shell of the nut (endocarp) is very thin, completely suberous, and reduced to a subero-membranous envelope, soft to the touch, very fine, in some places absent and showing the kernel."

On another occasion, M. Jamin exhibited before the Société Nationale d'Horticulture de France, in October, 1911, some "shell-less" nuts with a parchmented envelope, more or less open, taken from a tree with laciniate foliage, raised from a seedling of Juglans laciniata. M. Passy, who remembers this exhibit of M. Jamin, in an article in the *Revue Horticole*, 1911, p. 566, describes at the same time, in connection therewith, the existence of a shell-less Almond (Amygdalus) with only a parchmented envelope, found in 1909 in the south of France; the Almond was less flat and rounder than ordinary Almonds.

It is common knowledge that there are a variety of nuts with tender shells, known as "tit-nuts," by reason of their being so frequently pecked by these birds. In this case the shell is so thin that it yields to the least pressure of the fingers, and is even sometimes missing on both sides, near the top. But it is evident that fruits which are shell-less, or in which the shell is a mere skin, would be likely to be more frequently attacked by birds.

No. 7—lower row—is Juglans regia with a very small Nut ("Noisette")—(Juglans regia microcarpa). Here is a case of an old variety with very small fruits the size of a Hazel Nut. The shell is normal and the nuts very full, and of good quality. The foliage is also smaller than in ordinary varieties.

In No. 8—lower row—Juglans regia is represented by a tiny nut, the size of a very small elongated Hazel Nut. This is probably the form described by Carriere (*Revue Horticole*, 1868), under the name of Juglans regia olivaeformis; a very small nut with a very tender skin, similar to that of the "tit-nut." By comparison one may mention the variety called "*à bijoux*," (Juglans regia var. maxima), of which the fruits are enormous, but with shells incompletely filled. The shells are used for making jewel cases, hence the name. Another curious variety of Juglans regia is the one known as the "red-ringed," in which the pellicle surrounding the cotyledons is of a red colour.

The first and second nuts shown in the lower row of Fig. 188 are curiously flattened and mis-shapen. *A. M.*

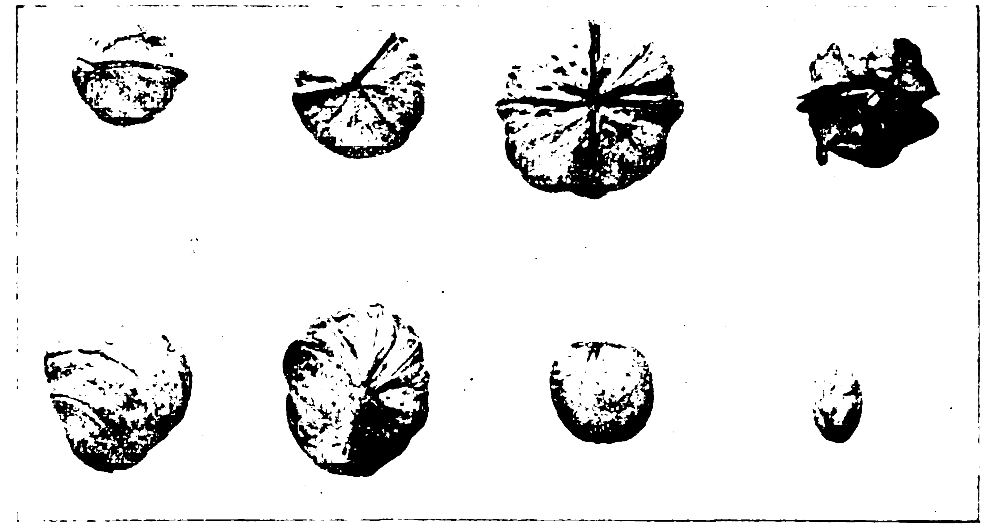


FIG. 188.—ABNORMAL WALNUTS.

TREES AND SHRUBS.

THE BIRCHES.

The origin of the name Birch, or Birken, seems to be open to doubt, but there can be no doubt concerning the beauty of the tree, for this "Lady of the Woods," with its elegant outline and light green foliage contributes a picture to our spring landscape that a mere description can hardly do justice to.

In the early days of Scandinavian adventure, the bark of the Birch tree was commonly used for boat-building and roofing, and hence a boat may be called a "bark," and even in the French form of "barque" may be traceable to the bark of a tree. Wächter asserts that the German noun, "Birke," is from the verb, "brechen," to be bright, and has reference to the brilliant whiteness of the bark, and this is a character quite as likely to beget a name for the tree as any of its uses. The Latin "Betula," is from the Keltic, Betu, which refers to wood generally and seems to carry us to a northern clime, where the Birch predominated as the sole and principal source of timber for all purposes.

In the botanical sense, the Birch is sister to the Alder, for they nearly agree in the characters of the fruit, although in general appearance they do not appear to the casual eye in any way related.

In the Birch and Alder, the male and female flowers are both produced in catkins, a point in which they differ from all other amentiferous trees, with the exception of Willows and Poplars. They agree, also, in their peculiar adaptation to a great variety of climates, one of the results of this accommodating nature being that they are most extensively distributed in the temperate and arctic regions, and, wherever prevailing, prove of the utmost value to mankind. The Birches and the Willows compete for the honour of growing nearest to the North Pole, and there is a Birch, Betula antarctica, that attempts to reach the South Pole but, like some timid voyagers, stops short somewhere about Terra del Fuego. All these cold-country Birches are of diminutive growth, and before they finally disappear entirely on the confines of eternal frost, they shrink low and hug the ground so as to make a mere carpet of wiry fibre upon it, which may perhaps be torn off in the manner of a mat and serve for the belated explorer as the last supply of fuel on the way towards the Pole. The most northerly of the Betulas is B. nana, which in Lapland supplies the ptarmigan with food. On the American continent its place is taken by B. glandulosa.

The Birch lives in a dry and airy situation, but its frequency in wild mountain scenery where waterfalls and lakes prevail, causes it to be regarded often as a moisture-loving tree. Its near relative, the Alder, will thrive in a marsh, but this the Birch will never do, and therefore the planter must beware not to put Betulas on heavy, undrained land. The Birch is a valuable garden and shrubbery tree, but it is rustic and requires judicious handling when brought into highly dressed scenes. For the front lines of mixed plantations and for roadside trees the common Birch, B. alba, is quite sufficient. Equally valuable is the Black Birch, B. nigra, which has beautiful foliage and a rich brown bark. These trees, when planted for ornament, should never be pruned or in the slightest degree mutilated, and therefore, before they are planted, consideration should be given to the space that may ultimately be necessary for their full development. As an ornamental tree the Birch contrasts its light, airy form against trees of more massive character. Its silvery stem, carrying a head composed of delicate tracery is statuesque and makes a feature. Its light foliage gives a stippled effect against the blue sky, softly green in summer, deliciously golden in autumn.

Betula alba, in its commonest form, attains the highest beauty when in some degree isolated and made safe against the pruner. The varieties offer interesting characters for specimen purposes. The one known as fastigiata imitates the Lombardy Poplar; atropurpurea has purple leaves; pendula laciniata is one of the finest of weeping trees, combining indescribable grace with great vigour of growth, the white bark shining delightfully through the exquisite network of its much-cut leaves. Quite distinct and, indeed, extravagantly weeping, is pendula Youngii, which, when grafted standard high, soon forms a free, spreading head, the long slender branches drooping to the ground and forming a tent which may be described as a living lace of leaves. B. nana forms a pretty, miniature tree, and B. papyrifera is of handsome, vigorous growth with a white bark, surpassing all other Birches in brilliance. *A. P. C.*

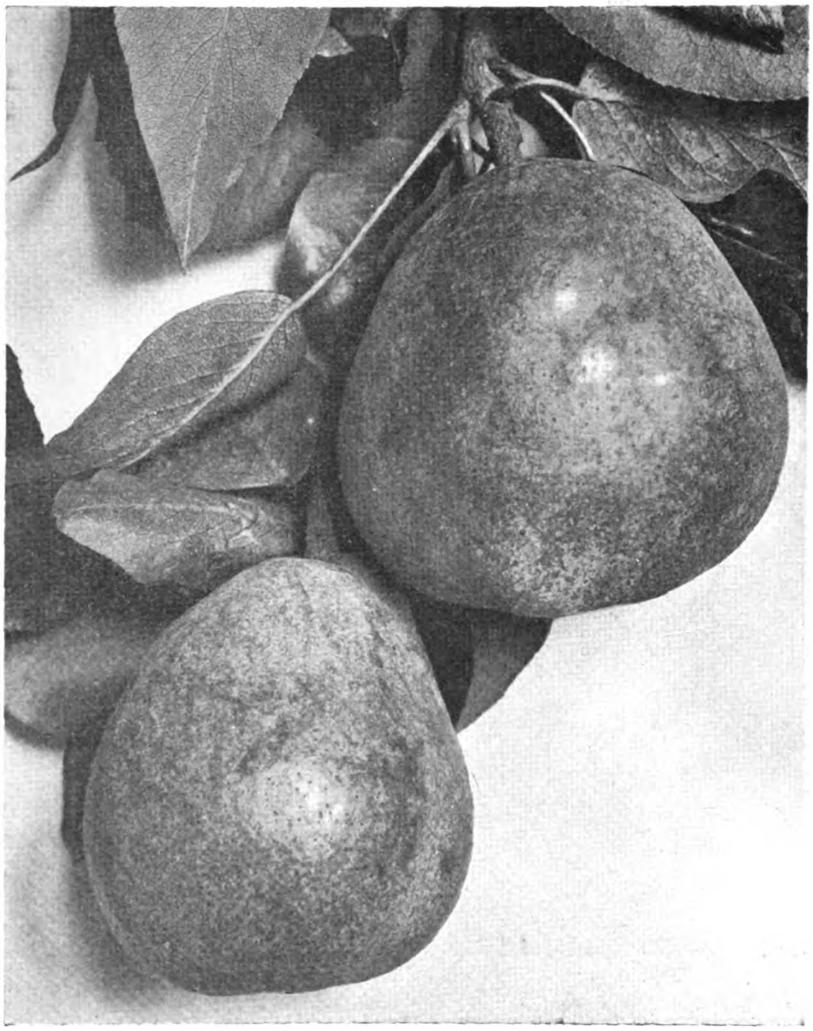


FIG. 189.—PEAR MONARCH.

FRUIT TREES AS ORNAMENTAL SUBJECTS.

YOUR correspondent, Mr. Ben H. Martin, on page 276, takes exception to Mr. John Coombes' championship of the use of fruit trees, evenly from a purely ornamental standpoint, as an integral part of the garden scheme. I am afraid I do not quite grasp Mr. Martin's allusion to the use "by every firm of landscape gardeners of repute in this and every other European country and also on the American continent" of the forms of our domesticated fruit trees. That the Almond and the Peach are, in various forms, often grown for purely ornamental purposes is common knowledge.

The presumed ancestors of our garden Cherries —Prunus Avium and P. Cerasus—are not infrequently to be met with in gardens, at any rate in their double-flowered forms, but neither is superior in beauty at flowering time to "May Duke" or many another variety of dessert Cherry. I do not remember seeing any form of Prunus domestica used in the way Mr. Martin suggests.

Again, the Parsley-leaved Blackberry, Rubus laciniata—a really splendid plant—is occasionally to be seen on a pergola, but I have never noted any form of Red or Black Currant or Gooseberry (properly so called) used for garden adornment in the way suggested.

Possibly, however, your correspondent has in mind the Japanese and other Oriental Cherries, varieties of such of the Plum tribe as Prunus triloba, P. cerasifera and P. spinosa, Asiatic Cydonias, purely ornamental species of Rubus and Ribes—and so forth. If this be the case, it is not at all easy to see the connection of such kinds with hardy fruits in the sense in which the term is usually understood. Many species of Berberis, for instance, to say nothing of the Rowan, could have a better claim made out for them in this connection.

Your correspondent seems a little didactic, as to what has or has not received "the deep and careful study of this branch of the profession." Landscape gardening (which might, by the way, lay some claim to being a profession in itself) is in this country so entirely without any organisation or unification that he is indeed bold who would venture to speak in such a matter for his fellows in the craft. For my part, I incline to think that Mr. John Coombes was entirely right and that landscape gardeners "when undertaking the construction of pleasure grounds," do almost invariably neglect "the utility of hardy fruit tree for producing fine effects," and I have this ground for thinking so, that I know fruit trees could often be used satisfactorily where they are, in fact, omitted.

Where space is limited, everything possible should be done to combine the ornamental with the purely utilitarian, and a small grass orchard may often be so arranged that it forms a very practical and beautiful part of the lay-out. That, in such case, the trees should be selected, so far as possible, for their suitability for the dual purpose, goes without saying. Again, the more ornamental sorts should occupy the more conspicuous positions.

Of the commoner fruits, Apples, Pears and Cherries provide the greatest wealth of beauty, and certain varieties of Pear, in particular, are invaluable for their fine habit of growth and autumn leaf-colour. Well-kept cordon, espalier and pyramid fruit trees give that ordered trimness to the kitchen garden which makes their inclusion in the general scheme not merely permissible but advantageous. And how many acres of wall space in this country are devoted to Irish Ivy and other more or less ornamental but common-place climbing plants which might be better occupied with choice fruits; and this with no loss of beauty and great gain of utility. Do not think, however, that I would confine our wall-space to utilitarian climbers. Man does not live for fruit alone, and where space is needed for a choice and beautiful plant by all means let us ungrudgingly afford it. Nor will I deny that some walls absolutely call for the kindly screen of Ivy. It is the excessive use of such climbers as the Ivies and the so-called Ampelopsis Veitchii which is to be deprecated. Many a south-west wall is given over to such plants, which would shelter the valuable and beautiful Loquat or even a Sweetwater Grape vine.

The fruit pergola, again, supplies a pleasing and practical method of establishing some architectural connection between otherwise scattered garden features, and where this is, for any reason, undesirable or impracticable, the moderate use of the Loganberry and the Parsley-leaved Blackberry on the more orthodox ornamental structure could easily be justified.

The intrinsic beauty of an ancient but healthy Apple tree is universally admitted, but alas! we cannot plant aged trees, though we may sometimes have the good fortune to find such in positions where, with possibly a little trouble, we may include them in our garden lay out.

Even the use of fruit trees in the mixed shrubbery or flower border may be justified in a very small garden, but it is well in that case to keep the fruiting kinds away from other related species and, in particular, from Thorn hedges. Hardy fruit trees were grown for centuries before grease-banding was thought of, and we have, on occasion, to spray or otherwise "doctor" ornamental trees and shrubs to safeguard them from insect pests and fungous diseases! *R. V. Giffard Woolley, N.D.H., (Lands. Gard.), F.L.S., Lepworth.*

FRUIT REGISTER.

PEAR MONARCH.

THIS excellent dessert Pear (Fig. 189) was raised by Thomas Andrew Knight, for which reason it is often known as Knight's Monarch. The name is in honour of William IV, for it was first fruited in 1830, the opening year of the reign of that Monarch, and the raiser considered the name eminently suitable, as, in his opinion, it was the best of all Pears. To use the exact words of Mr. Knight, he named it "under conviction that for the climate of England, it stands without equal and because it appeared in the first reign of our most excellent Monarch."

The variety is interesting as being one of the earliest fruits figured in *The Gardeners' Chronicle*, for an outline illustration of it appeared in our issue for February 12, 1842, page 109.

Hogg describes it as one of the most valuable of Pears, ripening in December and January, and Mr. Blackmore stated that "it is of grand quality when the flesh is yellow, which happens only in good seasons." It is certainly a most useful Pear and worthy of inclusion in any fruit garden, although it is not so suited for wall culture as some other varieties. As will be seen on reference to the illustration, the fruit is of medium size and roundish in outline. The skin is yellowish-green, covered with brown russet and freely speckled with grey-russet dots. The flesh is yellow, buttery, melting, very juicy and with a very agreeable flavour. The tree forms a handsome pyramid and is very fertile. One peculiarity of this variety is the very large oval buds in winter which Bunyard, in *A Handbook of Fruits*, states, "stand out like those of a Red Currant."

THE COLOURING OF GRAPES.

Intense colour in Grapes, associated with perfect finish generally, always betokens high quality in the berries, and well-finished bunches carrying high colour and plenty of bloom are not only superior for table, they also keep better than those that are poorly finished and with little bloom. When the berries are covered with the latter, condensed moisture will cause no harm, for the bloom is Nature's way of providing the fruit with a kind of protective water-proof covering of wax. A bunch of Grapes that has good bloom upon it may be plunged into a pail of water and the water will run off the berries like mercury.

Lack of phosphorous and potash in the soil is one of the causes of the berries not finishing in a proper manner, and no amount of nitrogen will make up for the deficiency of these elements. An even circulation of air in the vinery is another important cultural item in ensuring the perfection of the berries.

The leaves should be at sufficient distance from the roof-glass to allow the air to circulate all around them and the sunlight to enter the vinery. Leaves crowded one above the other soon lose their deep green colour and do harm to those exposed to the light by impoverishing the sap. There should be sufficient room for four leaves to develop perfectly beyond the bunch, fully exposed to the light without touching the glass. This necessitates that the rods should be trained at least four feet apart, and the wires for training the laterals should be two feet distant from the roof. There is another advantage in having the vines a good distance from the glass, besides admitting air and light to the leaves; air, light and sun-heat are all necessary in producing root growth, and have a considerable influence in improving and quickening root action, the effect of which soon spreads to the leaves and fruit.

Over-cropping is also detrimental to the production of perfect bloom. In the matters of feeding and forcing, due regard should be given to the constitution of the vine. Many young vines are ruined by growers in their endeavour to produce a heavy crop the first season with the result the following season the vine lacks vitality necessary to make so good a start as in the previous year, and although the crop may be considered good, it is certainly not so satisfactory as the previous one.

Bad colouring is sometimes caused by excessive defoliation of the vines, for it checks the development of the fruit, and both size and quality of berry are lost. The better plan is to pinch out the points of the laterals that are not required for furnishing the wires, and the best time to do this is early in May.

During the stoning and colouring period do not maintain a high temperature in the vinery, and remember that the vines require more water when the bloom is forming than at any other time. When there is a plentiful supply of spring water this should be used for watering the vines, for the minerals contained therein are beneficial to the fruits, but the water should be allowed to become tepid before using it. *G. Barton.*

HOME CORRESPONDENCE.

Statice latifolia.—Your correspondent, Mr. Ralph E. Arnold (p. 323) may be interested to know that Statice latifolia may be easily increased by root-cuttings, made in the same way as Sea-kale root-cuttings. I have raised many plants by this method, selecting small pieces of root about a quarter-of-an-inch in diameter and three to four inches in length, dibbling them in ordinary, good soil with a good surfacing of sharp sand. April is a good month in which to insert the cuttings, although the present time should not be too late. An old plant lifted and divided carefully may also furnish a goodly number of root-cuttings which will reach flowering strength in two years. *Arthur J. Cole.*

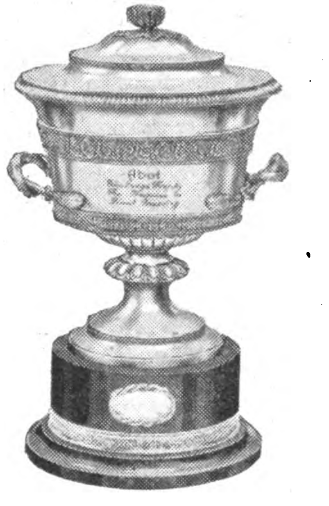


FIG. 190.—ABOL CHALLENGE CUP FOR PROGRESS IN PLANT BREEDING

A Challenge Trophy for Plant-Breeding.—A competition which should be of immense interest to all garden lovers has been arranged for the Staffordshire and Midland Counties Show, which is to be held at Burton-on-Trent, on August 11 and 12 next. Messrs. Abol, Ltd., are offering a Championship Trophy in the form of a Silver Cup, valued at seventy guineas, as a reward for progress in plant-breeding. The competition is described in the show schedule as "The Abol Challenge Trophy, offered in open competition for the exhibit which demonstrates the greatest strides of progress achieved of recent years in the development of new strains, types or varieties of any one family or tribe of plants. The trophy may be competed for by any trade, private, educational or experimental cultivators, and producers of plants, either hardy or tender, ornamental or utilitarian, and may be won independently of and in addition to any other awards received at this show." *E. C. J.*

PUBLIC PARKS AND GARDENS.

The Comrie (Perthshire) Parish Council will purchase what is locally known as "The Park of Refuge," in Dalginross, for a public park.

It is announced that ex-Provost Boath, Bervie, has given a pleasure park to the community of Gourdon.

The Ministry of Health has authorised the Middlesex County Council to borrow £27,341 towards the cost of the acquisition of Gunnersbury Park as an open space.

The Thornley, Durham, Parish Council has agreed to lay-out a recreation ground at an estimated cost of £300.

SOCIETIES.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

Thursday, April 9.—*Committee present*: R. Ashworth, Esq. (in the chair), Messrs. C. Branch, A. Burns, A. Coningsby, J. Cypher, J. Evans, A. Keeling, G. W. Thompson and H. Arthur (Secretary).

First Class Certificates.

Odontoglossum crispum Berengaria.—A round flower with white petals fimbriated at the edges; the sepals are tinged pink; *Odontoglossum Roseanna.*—A large, round, white flower; the large, flat lip has a deep maroon blotch. Both from S. Gratrix, Esq.

Odontoglossum crispum Pearl White.—A white variety with a bright yellow crest on the lip. From Mrs. P. Smith.

Odontoglossum crispo-Solon var. Kenneth.—A rich, chestnut-coloured flower with a margin of white around the segments. From H. T. Pitt, Esq.

Awards of Merit.

Cymbidium Low-grinum, Rosslyn variety; Miltonia Wm. Pitt var. Flamingo.—From W. Pitt, Esq.

Cymbidium Castor (*Woodhamsianum × insigne*), *Cymbidium President Wilson* (*Alexanderi × Lowianum*). From the Hon. G. E. Vestey.

Cypripedium Cardemona compactum (*Carola × Desdemona*).—From Mrs. P. Smith.

Groups.

S. Gratrix, Esq., West Point (gr. Mr. C. Branch), was awarded a Gold Medal for a group of Odontoglossums in great variety and other Orchids. A Gold Medal was also awarded to the Hon. G. E. Vestey, Southport (gr. Mr. B. Collins), for a group.

Excellent groups of Orchids were staged by J. B. Adamson, Esq., Blackpool (gr. Mr. R. Taylor), and H. T. Pitt, Esq., London (gr. Mr. F. Thurgood), for which large Silver-gilt Medals were awarded, respectively.

Mrs. Bruce and Miss Wrigley, Bury (gr. Mr. A. Burns), staged an exhibit for which a Large Silver Medal was awarded, a similar medal being awarded to Messrs. J. Cypher and Sons, Cheltenham, for their group.

Friday, April 23.—*Committee present*; R. Ashworth, Esq. (in the chair), Capt. W. Horridge, Messrs. C. Branch, A. Coningsby, D. A. Cowan, J. Cypher, J. Evans, A. Keeling, E. W. Thompson and H. Arthur (Secretary).

First Class Certificates.

Odontioda Redstart, Memoria Queen Alexandra.—A fine flower of dark mahogany colour with a lip of lighter shade. *Cattleya Clotho, Adamson's variety.*—A well-set flower with a deep amethyst lip. Both from J. B. Adamson, Esq.

Odontoglossum crispum Gladiator.—A large, white flower of good substance with serrated petals. *Laelio-Cattleya Queen Mary, West Point variety* (*L. C. Lustre × C. Petersii*).—A variety of even colour with yellow blotches in the lip. From S. Gratrix, Esq.

Awards of Merit.

Odontoglossum crispum Fairy; O. amabile Sunrise. From Mrs. P. Smith.

Brasso-Cattleya Apollo Regina.—From J. B Adamson, Esq.

Groups.

A Gold Medal was awarded to S. Gratrix, Esq., West Point (gr. Mr. C. Branch), for a group.

J. B. Adamson, Esq., Blackpool (gr. Mr. R. Taylor), staged an exhibit to which a Large Silver-gilt Medal was awarded.

Messrs. J. Cypher and Sons, Cheltenham, were awarded a Silver Medal for a group of Orchids.

NATIONAL TULIP.

A few competitors brought exhibits to the Royal Horticultural Hall on Tuesday, May 4, and these were accommodated in the Orchid Annexe, Orchids being conspicuous by their absence on that first day of the general strike.

In the principal open class for a dozen dissimilar rectified Tulips, two feathered and two flamed of each class, the premier award was won by Mr. C. W. Needham, Hale, who had clean examples of Annie MacGregor, Attraction, Stockport, Sam Barlow and Carbuncle; second, Mr. W. Peters. For six varieties, one feathered and one flamed of each class, Mr. Needham and Mr. Peters were again successful in similar order. Mr. Needham also won first prize for three feathered Tulips; second, Mr. C. J Fox, Birmingham.

Mr. W. Peters, Cambridge, secured first prizes for three flamed Tulips, six dissimilar, breeder Tulips, and three dissimilar breeder Tulips; in the first of these classes Mr. Fox won second place, Mr. Needham gaining second prizes in the other two.

The Samuel Barlow prize offered for the best pair of rectified Tulips, one feathered and one flamed of any class, was won by Mr. C. J. Fox with good blooms of Julian Farnese and George Edward; second, Mr. W. Peters; third, M. C. W. Needham.

Although the exhibition was a small one it afforded ample evidence of the enthusiasm of those who grow, show and take a great delight in the old English Florists' Tulips.

Obituary.

J. T. Bennett Poë.—As we go to press the news reaches us of the recent death of Mr. J. T. Bennett Poë, one of the earliest of Daffodil enthusiasts, a lover of old English Tulips and florists' Auriculas,. and a clever cultivator of uncommon plants. We hope to publish a fuller account of Mr. Bennett Poë's horticultural activities in our next issue.

Lady Bledisloe.—By the death of the wife of the Parliamentary Secretary to the Board of Agriculture, on May 15, horticulturists have lost a generous patron. Lady Bledisloe loved most flowers, but Carnations were her favourites in recent years, and she regularly wore blooms of the variety Mrs. C. F. Raphael. The remains were interred in the family vault, and the relations and friends carried out her wishes by brightening the church and surroundings with hundreds of Carnations, among other flowers. Lord Bledisloe and his family will have the sincere sympathy of all lovers of nature in the sudden loss that has befallen them.

H. N. Ellison.—This well-known nurseryman met with his death by accidental drowning on February 11 and the tragedy was not discovered until many weeks afterwards. His remains were cremated at Parry Bar Crematorium on the 10th inst. He was a well-known nurseryman, having his business at West Bromwich, but he resided at Hanley Castle, Worcestershire, He specialised in Ferns and Cacti.

Frederick Gee.—We regret to learn of the death of this well-known seed-grower, on May 4 last, at his residence, Riverford House, Biggleswade, Mr. Frederick Gee, who was nearly eighty-two years of age, had, to a great extent, retired from business and public life since the death of his wife, but for very many years he was prominent in the social, political and religious life of his town and neighbourhood, and filled many important public offices. Mr. Gee was born at Balsham, Cambridgeshire, and when quite young his parents moved to Biggleswade. When only twelve years of age he was apprenticed to the leading seedsman in the town and made such good use of his opportunities that, when sixteen years old, he started in business on his own account as a seedsman and plant-grower. Under such keenness and enterprise the business grew, and thirty years ago Mr. Gee moved to Riverford. Messrs. Gee and Sons have held royal warrants under three sovereigns and are large employers of labour. Mr. and Mrs. Gee had sixteen children, of whom nine survive, and three sons carry on the business.

Albert E. Gooden.—We regret to record the death of Mr. Albert E. Gooden, Spratton, Northampton, which occurred on May 12, after a painful illness. Before his retirement he was gardener at Naseby Hall, Rugby, at Burton Park, Petworth, Sussex, and also at Shopwyke, Chichester. He was a very keen gardener and won numerous medals and other prizes at such exhibitions as Chichester, Petworth and other places, with Grapes and plants. The interment took place on Saturday, May 15, at Spratton. Deceased leaves a widow, four sons and three daughters to mourn his loss.

W. Owen.—After an illness of several months during which he suffered severely from Bright's disease, and heart trouble, Mr. W. Owen passed away on May 6, at Bryn Bras Castle Gardens. During the early part of his career he served under such well-known gardeners as Mr. Walter Speed, at Penrhyn Castle, and Mr. W. Crump, at Madresfield Court. His first position as gardener was at Toston Hall, Derby, which he left to take charge of the beautiful gardens at Powerscourt, Ireland. Thence he moved to the Marquis of Anglesey's fine place at Plas Newydd, Isle of Anglesey, and eventually became gardener and steward at Bryn Bras Castle, where he died. He leaves a widow and two sons to mourn the all too early bereavement.

H. Wingrove and Mrs. H. Wingrove.—For over half-a-century Mr. H. Wingrove had charge of the gardens at Rousham Hall, Rousham, Oxon, and for seven years previously was in charge of the gardens at Courteen Hall, Northamptonshire, thus serving the Dormer family for nearly sixty years. A capable gardener and an enthusiastic cultivator of fruits and vegetables, Mr. Wingrove will be remembered for several introductions, including Rousham Park Hero Onion. As an exhibitor he was particularly successful in his arrangements of flowers and plants at Oxford, Banbury and other western shows. Mr. Wingrove was greatly beloved at Rousham, where he took part in all local functions and was for many years a bell-ringer in the church. Mrs. Wingrove passed away on May 1, predeceasing her husband by two days. The remains of husband and wife were laid to rest together and the funeral was attended by their son and two daughters, Capt. Cottell Dormer and Mr. T. C. Dormer, representatives from various associations in the district, and practically every inhabitant of the village in which this worthy couple had resided for such a long period.

TRADE NOTE.

The *Covent Gardener*, published "now and then" by Messrs. George Monro, Ltd., is always welcome, as it is never lacking in interest and humour. The most recent issue—regarded as a Chelsea Show number—includes a brief history of the Royal Hospital and its objects, with a good reproduction of an old print, published in 1757, of the Hospital and its grounds, as viewed from across the Thames. The inception and growth of the Royal Horticultural Society from 1804 to date is ably described. There are various articles and notes of especial interest to growers and others connected with the trade, and of these that on "Smalls" is especially valuable. "Smalls," we may explain, is the trade term for the many and varied insecticides and fungicides which are offered for sale. A lighter note, seasoned with gentle sarcasm, is struck in the page of "Sundry Comments," and the three or four pages of "Travellers' Tales" are evidently written by a cynic blessed with the saving grace of humour.

ANSWERS TO CORRESPONDENTS.

Horsetail Weed.—*F. P. H.* The weed sent is the common Horsetail. Equisetum arvense, which is very difficult to eradicate once it has obtained a hold upon land. It should be forked out with the utmost care, as almost every piece left in the ground will start to grow again. After thoroughly forking it all out, the Dutch hoe should be used at regular and frequent intervals, as it will gradually die out if prevented from making leafy growth.

Moth Pupa and Beetle Larva.—*M. M.* The larger of the specimens sent is the pupa of a moth, but it is not possible to state exactly what the species is, although it probably belongs to the Noctuidae or Owlet Moths. These include many species which are harmful to crops, notably the Turnip Moth, Heart and Dart Moth and others, the caterpillars of which feed on surface vegetation of all kinds and are known as "surface caterpillars." The small specimen is the larva of a Carabid Beetle. The Carabidae, or ground beetles, are all predaceous, both in their larval and adult forms, and are useful friends of the gardener. They prey on all sorts of small insect life and sometimes on small earthworms, but in any case they are entirely beneficial.

Names of Plants.—*W. A.* Rhododendron Mrs. Wagner. *J. E.* 1, Acer palmatum var. atrosanguineum; 2, Primula malacoides; 3, Rhododendron, probably one of the Highclere Arboreum hybrids raised at the seat of the Earl of Carnarvon, in Berkshire, many years ago. *G. K. P.* 1. Pyrus spectabilis; 2, P. purpurea; 3, P. floribunda var. atropurpurea; 4, P. floribunda; 5, P. floribunda, probably a seedling tree; 6, Ribes aureum; 7, Akebia quinata; 8, Amelanchier asiatica. *W. A. L.* A species of Prunus. but the specimen was too withered for definite identification.

Primroses, Auriculas, Polyanthuses and Lily-of-the-Valley.—*T.* All these subjects should be divided just after they have finished flowering. Lily-of-the-Valley should be replanted every third or fourth year; it is really best to make a fresh planting every year and thus have a succession of strong crowns always available. Replanting is best done during the autumn after the foliage has died down. Old beds benefit greatly if they receive a top-dressing of well-decayed manure during the autumn or early winter.

Salvias and Fuchsias.—*G. L.* We believe that a low temperature, coupled possibly with an excess of moisture, is responsible for the failure of your Salvias and Fuchsias. No fungus was present, so we conclude the trouble is due to some cultural error, as suggested.

Shrubs Dying.—*Neath.* No sign of fungous attack could be found on the specimens of shrubs received, therefore the cause of the trouble must be determined locally. It is possible that the shrubs are old and decrepit and therefore unable to withstand the severe climatic variations experienced this spring. If the soil about the roots has become dry, this may be responsible for the trouble.

Vine Failing.—*Enquirer.* The cause of the failure with your particular vine may probably be traced to the winter treatment, and we suggest that the use of paraffin in excess of the usual amount may be responsible. There was no fungus present on the specimen you sent us.

Communications Received.—R. W. H. B.—W. F. H.—R. E.—E. A. H.—A. E. M.—K. M. S.—A. D. W.—A. G.—W. C.—R. L. H.—A. M. C.—M. C.—J. M. H.

THE
Gardeners' Chronicle
No. 2057.—*SATURDAY, MAY* 29, 1926.

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AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 57·9.

ACTUAL TEMPERATURE—

The Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, May 26, 10 a.m. Bar. 30·1 Temp. 70°. Weather, Fine.

A Late Season.

LONG memories may, perhaps veraciously, solace those of us who are impatient for sunshine by recalling that 1879 was just such another year as this. Cold and wet and late; so late indeed that the floods were out at Oxford during "Eights week." However that may be, this year will doubtless be cited by gardeners as one of doleful record. Yet it is perhaps when weather is most dismal that the gardener has most reason to be glad that he is a gardener; for it is under grey skies that gardens are most beautiful. When the sun shines flowers fade and pass away quickly, but in this dull season they go on and on—things of beauty which are joys for ever. For example, Aubrietias are running races of endurance in floriferousness with Lithospermums and both have been blooming now for upwards of two months. Cytisus praecox, which came out soon after Magnolia stellata had been nipped by the frost, still preserves the creamy freshness of its flowers. The water-side Primulas and in particular P. pulverulenta, seem to develop their colours more brilliantly on account of the prevailing low temperature, and so to a yet more marked extent do Rhododendrons. In the absence of sun and warmth Pink Pearl, for instance, has transformed itself into a full deep pink, and Loder's White, as was most noticeable when first it began to blossom this year, belies its name by its deeply flushed pink petals. Other plants contrariwise hesitate to develop their blossoms and their flowers remain huddled in the bud stage. Of these the Judas tree, Cercis Siliquastrum, is a conspicuous example. For three weeks now the pink blossom buds have bided their time and are still biding it. Yet again other plants, Saxifrages in the rock garden, S. Aizoon rosea and S. rosularis show a brave indifference to weather and by their floriferousness defy the element and transform dullness into brightness. Needless to say, the careful gardener has indeed a long list of grudges against this season. Fruit promised so well—Pears in particular were pyramids of blossom and of fruit, but it is doubtful whether much will survive the prolonged check to which it has been subjected. And as for Apples they began blooming late; many varieties are still in bloom and some even have not yet opened their flowers. The vegetable garden shows how backward is the season. Many seeds still lie ungerminated in the ground and those of some kinds are not yet sown; morning frosts have dealt unkindly with fruits on walls and here and there have nipped the early Potatos. Aphis has once again settled on those Plums which were not sprayed, but on the other hand, thanks to winter spraying with carbolinium, caterpillars on fruit appear to be less numerous than usual. Slugs are having the time of their lives, but where the gardener is industrious in sowing alum around the plants delectable to slugs, he obtains a goodly daily "bag." The gardener who relies on annuals has had this year a difficult time. To sow or not to sow, that has been the question which has vexed him, and in many gardens it is only during the last week or two that it has been worth while to put in the ground seeds of annuals which are sown where they are to grow. In the dull light of these days many curious behaviours of plants are strikingly manifest. The south side of a specimen of Cupressus (Retinospora) Crippsii is golden, the north side is deep green, and so is it to a lesser extent with the golden form of C. macrocarpa. We have written so far of lucky gardens—those which escaped the ravages of the winter. There are, however, others which are less fortunate. In low-lying districts, in central England, the losses during the past winter have been cruel. Cistuses and Veronicas which were almost untouched on higher neighbouring ground have been cut down or killed outright. Olearia Haastii and O. stellulata show a like experience. There they have been cut and all but killed, whereas, on ground one hundred feet or so higher, they have escaped unscathed.

The John Innes Horticultural Institute.

THE lamented death of Dr. William Bateson leaves the Council of the John Innes Horticultural Institute with the difficult task of finding a new Director. They have, we believe, taken temporary measures to ensure the efficient carrying-on of the work of the Institute, but before making any permanent appointment the Council will doubtless review the whole question of the future of the Institute, and, if necessary, recast the policy which has hitherto guided them. It will be remembered that the John Innes Institute was founded and endowed with the object of promoting horticulture. It so happened that at the time of its foundation Dr. Bateson was engaged in research in genetics which bid fair to have a large influence on horticulture. No one who is aware of the work which he carried out there and of the influence which Bateson exerted would at this moment express disapproval of the judgment displayed by the Council in appointing him as Director. But horticulture may be promoted in many different ways of which research in genetics is but one. We should like therefore to be assured that the Council has considered the various methods whereby the terms of the trust may be carried out and that they do not intend merely to continue along the old lines of genetical research because these happened to be the lines on which the Institute was run in its early days. We have no wish at this stage to offer advice to the Council, the members of which must by this time have considered the position in all its bearings, but we would suggest that horticulturists generally would welcome a pronouncement from them with respect to the policy which they propose to adopt whereby the terms of the trust may be carried out for the benefit and advancement of horticulture.

A Strawberry Show.—The fruit growers in the Tamar Valley have decided to hold an exhibition at St. Dominic in June for the purpose of exhibiting Strawberries as a commercial proposition. This exhibition will be in addition to the annual show held at Saltash. The Hon. Secretary is Mr. C. A. Hall, Saltash.

Manchester and North of England Orchid Society.—The meeting of this Society fixed for Thursday, June 3rd, will be followed by the Annual General Meeting at 2.30 p.m., when the annual report and balance sheet will be submitted, members of the executive committee elected, and prizes won during the session presented.

The Oldest Rose Tree.—A chronicler of the general Press states that "what is probably the oldest Rose tree in the world grows at Hildesheim, near Hanover, in Germany." Mention is made of the church records which refer, from time to time, over fully a thousand years, to the training, pruning and methods of preserving a Rose growing against the Parish Church. The Rose covers nearly the whole of the east side of the Church, and the roots may be seen in the crypt "passing far below the foundations. The main stem is a veritable tree-trunk fully three feet in circumference."

Apple and Pear Scab.—Leaflet No. 131, just issued by the Ministry of Agriculture and Fisheries is of special interest to gardeners and fruit growers at the moment, should history unfortunately repeat itself, and wet weather during May be followed by severe outbreaks of scab disease in Apples and Pears. The most susceptible varieties of Apples are generally considered to be Worcester Pearmain, Bismarck and Cox's Orange Pippin, while Bramley's Seedling, Lord Derby and Grenadier are usually placed at the other end of the scale. Similarly amongst Pears Beurré Clairgeau, Beurré d'Amanlis, Doyenné du Comice and Williams's Bon Chrêtien are considered to be the most susceptible, with Conference and Fertility less liable to an attack. But the Ministry points out that too much reliance should not be placed on such lists, "because the intensity of scab attack is very largely influenced by variable factors, in particular, weather conditions," although the varieties named do very often escape when others are affected.

Restriction of Cuban Sugar Output.—We learn that notification has been given by the President to the Legation in London and the Cuban Embassy in Washington that the current production of Sugar will be limited to 4,758,993 tons, and that with the harvesting of the 1926-27 crop every effort will be made to make the world's sugar production equal to the demand.

Iris Susiana at Kew.—The interesting note on this fascinating Iris, recently reprinted from *The Gardeners' Chronicle* of seventy-five years ago, is a reminder that not everyone succeeds in flowering it really well. Some of the finest flowers of this species we have ever seen have just faded in the south border of the Herbaceous Garden at Kew. Mr. Irving believes that one of the chief essentials to success is the longest possible resting period. So soon as the foliage turns brown the rhizomes are lifted and placed in a dry shed to ripen. Replanting is delayed until the latest moment—the later in November the better—as then there is also less danger of injury to the young growths from frosts. Mr. Irving recommends a good, loamy, well-drained soil with plenty of lime.

Hardwood Industry in Ontario.—We learn from *The Times* that there has just been completed an agreement between the Ontario Government and a group of American capitalists for the establishment of saw mills, flooring plants, veneer plants and other wood-working industries in Northern Ontario between Brucemines and Thessalon. The equivalent of £200,000 is to be spent on construction, and it is anticipated that the works will give employment to 1,000 men. The company will secure rights to cut hardwood timber in twenty-five northern townships.

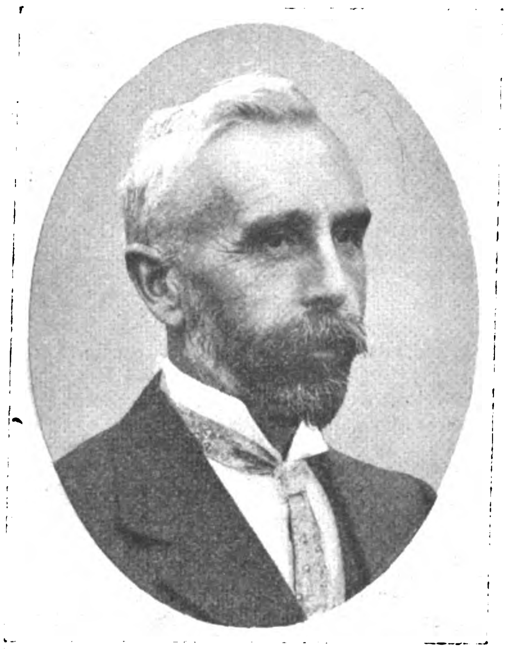
Legacies to Gardeners.—In their wills, recently proved, we are pleased to find that Mr. Robert Charles Donner, of Bowden Hill House, Lacock, Chippenham, Wilts., left £100 to his gardener, Mr. James Hill, and that Mr. Thomas Tufnell Staunton, of Braemar, Haywards Heath, Sussex, left a similar sum to his gardener, Mr. G. Alder.

Trophy for Seedling Carnations at Southport Show.—A silver trophy, value £10, to be won outright, has been offered for open competition at the Southport Show to be held in August next. The donor is Edgar Ingham, Esq., of Savile Heath, Halifax. Competitors for this trophy must exhibit one vase of twenty-five blooms of seedling Perpetual-flowering Carnations (any variety or number of varieties) not yet in commerce. The class will be known as "The Special Seedling Perpetual-flowering Carnations' Class." There will be no entrance fee. Entry forms may be obtained post free on application to the Secretary, Southport Flower Show, Town Hall, Southport.

Aldenham House Gardens.—These gardens will be open to the public, by kind permission of the Hon. Vicary Gibbs, during the Saturday afternoons of July, August and September (excepting Sat. July 17, when the Elstree Floral Fête will be held and admission will be by payment), and August Bank Holiday, on the same conditions as in previous years, viz.—that dogs are not admitted and that children must be under the control of a grown-up person.

Scotch Fruit and Potato Crops Damaged.—The devastating frosts experienced over a very wide area of Scotland during the past week-end were exceptionally severe for this advanced season and caused an amount of damage that cannot be estimated. In some districts 15° of frost were registered and pools were covered with ice following two successive nights of low temperature. The South Ayrshire crop of Epicure Potatos which gave promise of an abundant and early yield has been transformed into fields of blackened foliage and has suffered a check that will delay the period of marketing. Bush fruits in nurseries and private gardens have been ruined in numerous districts; in the West of Scotland and in the earlier localities Strawberries in flower were likewise injured, while the effects on Apple trees which were in full bloom can only be conjectured. Hundreds of thousands of young Spruce and Larch trees were completely destroyed in nurseries, and in this connection it may be noted that the frost had the peculiar effect that a few Potatos of the planted area escaped altogether or only suffered slight injury, while the surrounding mass was ruined. So far as private flower gardens are concerned the damage was mostly confined to Dahlias, Chrysanthemums, and other bedding out plants.

Mr. Mark Webster.—In 1896, Mr. Mark Webster came prominently before the horticultural world by winning the Gold Medal offered as an award to the most successful competitor at the National Co-operative Flower Show held at the Crystal Palace. Mr. Webster was then gardener to E. J. Preston, Esq., Kelsey Park, Beckenham, one of the most delightful gardens in Kent; it was a garden he greatly loved, and he had a liberal and appreciative employer who encouraged him to exhibit, with the result that produce from Kelsey Park won many hundreds of prizes in the London district and even so far afield as Southampton, Sevenoaks, Brighton and Edinburgh. Previous to taking charge at Kelsey Park, Mr. Webster was foreman at Cyfarthfa Castle Gardens, South Wales, and at Caversham Park, Reading; earlier, he served as general foreman at Newstead Abbey, after gaining experience at Widmerpool Hall, Handsworth Nurseries, and Endcliffe Hall, Sheffield. Illustrations of numerous specimens of fine plants cultivated by Mr. Webster have appeared in *The Gardeners' Chronicle*, and have demonstrated his skill as a plantsman. While at Kelsey Park, Mr. Webster took a prominent part in the work of the Beckenham Horticultural Society, and for nine years acted as its librarian. It was also while at Kelsey Park that Mr. Webster won the premier prize offered by Messrs. Selfridge's for the best specimens of the Cotton plant grown from seeds distributed by them. In 1913, after nearly twenty years at Kelsey Park, Mr. Webster moved with his employer to the Rookery, Westcott, near Dorking, where he continued as gardener until the death of Mr. Preston. At present he is engaged as gardener to H. E. Adams, Esq., at Great Haywards, Haywards Heath, and although many years have passed since we first met him, his hand has not lost its cunning, nor has his interest abated in the Gardeners' Royal Benevolent Institution and the United Horticultural Benefit and Provident Society.


MR. MARK WEBSTER.

Mrs. Edward Harding's Paeony Cup.—The competition for this Cup will take place at the Royal Horticultural Society's Fortnightly Show at Vincent Square, S.W., on Tuesday, June 15. Entries should reach the Secretary, R.H.S., Vincent Square, S.W., on or before Wednesday, 9th June. The Cup is offered for the best exhibit by an amateur of three flowers of each of six varieties of Paeony.

Forestry Commission's Arboretum.—At a recent meeting of the Cowal District Committee of the Argyll County Council a letter was read from Mr. J. Webster, factor to the Forestry Commission, in which he stated that the Commission were forming Puck's Glen and part of the adjoining woodlands into an Arboretum and Botanic Gardens, which it was hoped would be opened in the course of the next few months. It was proposed to form the entrance to the ground on the south or Kilmun side and as this would interfere with the stone depôt of the County Council the Commission offered to provide an alternative site.

The Neill Prize Awarded to Prof. F. O. Bower.—The Royal Society of Edinburgh has awarded the Neill Prize for the period 1923-25 to Prof. F. O. Bower for his contribution to botanical knowledge, and in recognition of his public work, extending over a period of forty-five years.

Ginkgo biloba at Kew.—Tree lovers, especially those of Conifers and the allied genera, will regret to learn that the Kew specimen of the Maidenhair tree has lost a large branch. On Sunday afternoon of last week, in relatively calm weather, the main branch on the southern side of the tree suddenly crashed and fell along the side of the gravel path, luckily without injury to the remainder of the tree, or to the adjoining Wistaria. The cause of the disaster—for such it is to arboriculture—is, at the moment, somewhat a mystery, and could scarcely have been foreseen. The shedding of limbs of the Broad-leaved Elm is a common occurrence during warm, "muggy" weather in early summer, but at the time the Ginkgo branch fell, the weather was cold. No doubt the branch and the trunk of the tree will receive critical examination, though no decay of importance is readily evident. There are no very old specimens of Ginkgo biloba in this country, and that at Kew is generally counted amongst the finest, so that we have no knowledge of the probable behaviour of the tree when it becomes aged, but it would be a matter for concern if it should prove to be more dangerous than the average deciduous tree. It seems possible that the collapse of the limb at Kew may be due to inherent structural weakness of the timber. Kaempfer, who was the first European to record the Maidenhair Tree, wrote that the wood was soft and brittle.

A Seedsman's Long Service.—*The Gloucestershire Chronicle* for Saturday, May 15, contains a portrait of Mr. J. T. Smith, who has been connected with the firm of Messrs. J. C. Wheeler and Son, Gloucester, for sixty-four years continuously. Mr. Smith is eighty-four years of age, and the *Gloucestershire Chronicle* states that his intellect as a keen business man is unimpaired.

Central American Plants.—Dr. Paul C. Standley, botanist of the American National Herbarium, recently returned to Washington from Costa Rica with a collection of nearly twelve thousand plants, including two thousand specimens of Orchids. He is preparing a memoir on the flora of Costa Rica, whilst the Smithsonian Institution is seeking funds to undertake botanical exploration in Honduras and Nicaragua.

Florists' Telegraph Delivery Association.—At the Chelsea Show we had the pleasure of meeting Mr. C. H. Brown, the President, and Mr. Albert Pochelon, the Executive Secretary, of the Florists' Telegraph Delivery Association, who are on a visit to this country and the continent with a view to forwarding the interests of the association. Both Mr. Brown and Mr. Pochelon were present at the annual meeting of the British Unit of the Florists' Telegraph Delivery Association held on Wednesday last at the Holborn Restaurant. Our friends were delighted and highly interested in the Chelsea Show and expressed their surprise at the magnificance of the exhibits which they said surpassed anything seen in America.

Cups offered by a London Markets Association for Potatos.—The London Fruit, Flower and Vegetable Markets Association, Ltd., has decided to offer two cups for competition at the next Spalding Potato Show. One cup, of the value of twenty guineas, will be offered for the best bag of English ware Potatos in the show; the other, valued at ten guineas, is for a class restricted to farmers whose area farmed does not exceed 200 acres, for the best bag of white English Potatos. These cups must be won three times in succession or four times in all to become the property of a competitor.

Experiments in Potato Planting.—Mr. G. E. Delong, of the Dominion Experimental Station, Lacombe, Canada, gives a summary* of experiments in connection with the preparation of the seed and the methods of planting Potatos. He states that early planting produces heavier yields than late planting, and that large Potatos produce earlier crops than seed that is cut; the whole, large Potato sends up stronger and more vigorous sprouts than small sets, and the sprouts seem to maintain their lead throughout the season. Moreover, large whole Potatos produce larger yields than smaller or cut sets. Experiments showed that tubers approximately two ounces in weight planted twelve inches apart in drills made thirty to thirty-six inches asunder, gave the most economical results. The number of eyes per set appear to have little effect on the yield. The experiments showed that, in Canada at least, five inches appears to be the most suitable depth for planting. The variety Gold Coin is most largely grown in Canada for the main crop, whilst Early Ohio is the earliest maturing variety.

Appointments for the Ensuing Week.—Tuesday, June 1: Royal Caledonian Horticultural Society's meeting. Wednesday, June 2: Abingdon Horticultural Society's meeting. Thursday, June 3: Manchester and North of England Orchid Society's annual meeting. Friday, June 4: Accrington and District Gardeners' Society's meeting.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Tea from China to India.*—The late Indian mail has brought the gratifying and important intelligence that Mr. Fortune's labours in procuring a supply of the finest Tea plants and experienced Chinese workmen, have been brought to a successful issue. He has arrived at Calcutta with eight tea manufacturers from the far-famed Tea districts of the north—the first who have ever left their native country from these districts—together with a large assortment of implements used there in the manufacture of Tea. He has also brought in good order 1,749 young Tea plants, and about 17,400 germinating seeds; a great success accomplished thus: He had fourteen Ward's cases for the young plants. Between each row of plants large quantities of seeds were sown in China when the cases were planted. Two other cases—made to take round some Camellias for the Botanic Garden, Calcutta, were filled with seeds mixed with a little damp earth. The Camellias were planted, and their roots covered with the same mixture of Tea seeds and earth. Thus he had in each box a mass of seeds, say three-fourths seeds and one-fourth earth. In this state the cases were brought round to Calcutta; when they arrived the Camellias were gently lifted out in excellent order, and the whole mass of Tea seeds was just beginning to germinate. It is estimated that the number of germinating seeds in these two cases is 16,000, or perhaps much more. Mr. Fortune was about to start immediately for the north-west provinces, the Government having furnished a steamer to take up all the plants, implements and Chinamen. *Gard. Chron., May 31, 1851.*

Publication Received.—*Gardens for Town and Suburb*, by V. N. Solly. Ernest Benn, Ltd., 8, Bouverie Street, E.C. 4, price 15s. net.

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* *Seasonable Hints.* No. 34, March, 1926, The Dominion Experimental Farms, Ottawa, Ontario.

BULB GARDEN.

TWO MINIATURE SPECIES OF CALOCHORTUS.

The beautiful Mariposa Lilies are, for the most part, a little exacting in their requirements, but give a generous return for the extra attention bestowed upon them. C. Benthamii and C. Maweanus are, I think, more easily amenable to ordinarily good culture than most of their congeners; I have seen them doing well in a sunny spot on the open rock garden, and in pans they are very beautiful.

The flowers of C. Benthamii are clear yellow, the petals densely covered with yellow hairs: the stem is three to six-flowered. The leaves are linear and very long. This species, which is from four to eight inches high, is a native of the Sierra Nevada.

C. Maweanus has flowers of purplish-mauve and white, more or less covered with purplish hairs; the leaves are glaucous and linear, and the stem three to six-flowered. This species attains to a height of from six to ten inches. It is a native of the San Francisco district.

A well-drained soil is essential to the successful cultivation of the Calochortus. When growing in the open rock garden, a hand-light should be placed over the bulbs during the ripening season, but a free passage of air must be provided. Both the species referred to flower during the summer. *Ralph E. Arnold.*

HARDY FLOWER BORDER.

POTENTILLA NEPALENSIS VAR. WILLMOTTIAE.

Lovers of hardy plants, whether for the rock garden or the flower border, are fully aware of the beauty and charm of Potentillas and prize them because of the long period over which they bloom. In addition to the suitable species and hybrids there are several fine varietal forms, and one of the best of these is P. nepalensis var. Willmottiae, which is of sufficiently lowly growth to be valuable for the rock garden, and robust enough for the front of the flower border.

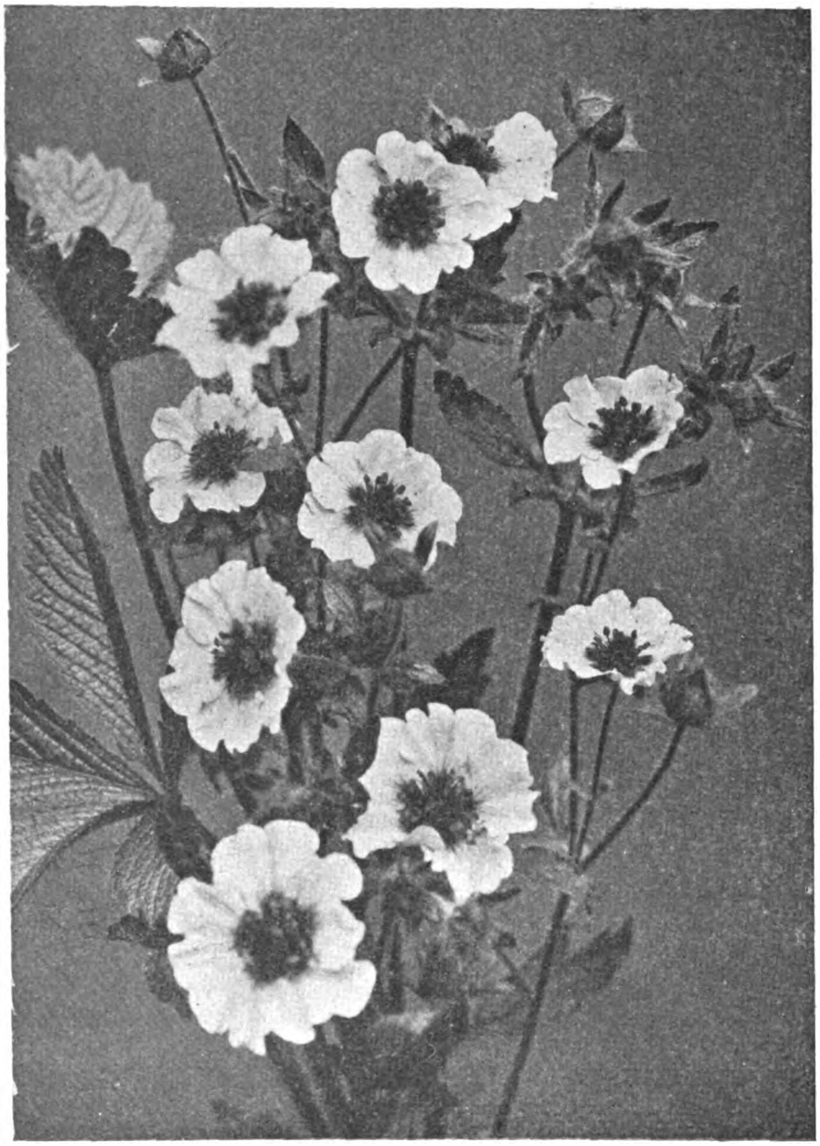

FIG. 191.—POTENTILLA NEPALENSIS VAR. WILLMOTTIAE.

This variety may rise to a foot in height where soil and condition suit it especially well, but usually it is of lowlier stature, becoming a prostrate plant with masses of elegant leaves above which rise an abundance of bright rose-red flowers. The latter are of good size, consequently a free-flowered plant is a beautiful object. Division in the autumn or early spring offers the best means of increasing the stock of this brilliant and useful Cinquefoil.

The late Mr. Reginald Farrer described this variety as "really a most glorious form," of P. nepalensis, "having flowers of the same amplitude, but of a more resplendent and lucent tender rose, on stems of eight inches or half-a-foot."

The Week's Work.

THE KITCHEN GARDEN.

By F. Streeter, Gardener to Lord Leconfield, Petworth Park, Petworth, Sussex.

Tomatos.—Plants raised and grown for fruiting out-of-doors should have been sufficiently hardened for planting in their final quarters. The roots should be set on a hard base in a border protected by south or west walls or a fence. Take out the existing soil and substitute a mixture three parts of well-chopped loam and one part manure from a spent Mushroom bed, mixed with wood ash and sufficient sand to render the soil porous. Ram the soil around the ball of roots when planting and attend to watering and staking. Keep all side-shoots pinched out and stop the main stem at the fourth truss of flowers; these will furnish as many fruits as will ripen properly.

Capsicums and Chilies.—These plants are ready for their final potting in receptacles six inches in diameter. Use the following compost: three parts good, fibrous loam, one part spent Mushroom-bed manure or leaf-mould, and sufficient sand to keep the texture of the compost open. Grow the plants steadily in heated pits close to the roof-glass. Fumigating the house on frequent occasions will be necessary to keep green fly in check, and the plants should be well syringed with clear water twice daily to kill red spider. So soon as the plants have made good growth pinch the tops of the shoots. These vegetables are highly esteemed in this establishment.

Celery.—The plants intended for the maincrop are ready for transference to the trenches. Select dull weather for this operation and lift the roots with a good ball of soil attached to them. Plant very firmly. See that the trenches are well-prepared and not too deep. Give the rows a liberal dusting with soot once a week, and see that the plants are not allowed to suffer from want of water. So soon as the planting is completed, give a final raking and smart finish to the ground, and sow Lettuce seeds very thinly between each row.

PLANTS UNDER GLASS.

By John Coutts, Assistant Curator, Royal Botanic Gardens, Kew.

Primulas.—Primula verticillata, P. kewensis floribunda and its colour form Isabellina, also P. Forrestii, are all beautiful and useful greenhouse plants that should be sown about this time. They all succeed under the cool greenhouse treatment given to Primula sinensis. P. verticillata makes fine specimens when grown on the second year, while P. Forrestii, which is a long-lived perennial, is best when two or three years old; if desired, this species, when it has attained some size, may be divided and repotted into smaller pots, and this is best done when the plant has finished flowering. This Primula is a lime-lover, and old mortar rubble may be used in the potting compost instead of sand. Where the original sterile type of P. kewensis is grown, propagation should be effected by division after the plants have passed out of flower.

Primula obconica.—Plants of Primula obconica raised from seeds some time since should be pricked off or potted on as they require it, while further sowings according to requirements may be made, as this useful Primula may be had in flower more or less all the year round. Those who suffer skin irritation from contact with this plant should on no account handle it, as much discomfort and even serious illness may result; some writers contend that the present-day strain is not so poisonous as the original types. It is unfortunate that such statements should be made as the plant is just as virulent as ever, and at Kew we are seldom or ever without workers who cannot handle this plant without being affected by it.

Primula sinensis.—Where large plants are required, specimens saved from last season should be grown on. Where this method of cultivation is followed the plants should now be placed in larger pots, those seven inches in diameter being suitable. Before repotting is done some of the old lower leaves should be carefully trimmed off to expose a portion of the old stems from which fresh roots will develop if they are covered with soil when repotting takes place. After repotting them, water the plants very carefully until fresh roots are produced. Care must also be taken not to pour water into the centres of the plants, or with such a mass of foliage damping is almost sure to result. Although any of the varieties may be used for this purpose, the Stellata varieties I consider give the best results. An alternative of this method is to sow the seeds during August or September and grow the young plants on without allowing them to flower until the winter of the following year.

HARDY FRUIT GARDEN.

By W. Auton, Gardener to Viscount Elveden, Pyrford Court, Woking, Surrey.

Raspberries.—The weight of crop obtainable from a well-manured Raspberry plantation is astonishing, but to ensure the production of a maximum crop, particular attention should be paid to the needs of the canes from now onwards, and especially is this important on light, thin soils. Being comparatively shallow-rooting, the Raspberry cannot withstand long periods of little rainfall, and unless there is ample moisture to enable the roots to absorb the nourishment available, artificial watering should be resorted to, or the developing crop will be poor. Where a heavy mulching of rich manure was applied earlier in the season there is less liability of the plants suffering from dryness, but unmulched beds should receive timely attention, while liberal applications of diluted liquid manure will prove highly beneficial. Where no other mulch is available, grass-mowings, of which there is now an abundance in most gardens, make an excellent top-dressing to retain the moisture in the soil. Remove methodically all unwanted young growths, leaving only sufficient strong canes to replace this season's fruiting canes when they are cut out after the crop has been gathered. So soon as these young canes have made sufficient growths to reach the first wire, attach them loosely to it to prevent possible losses.

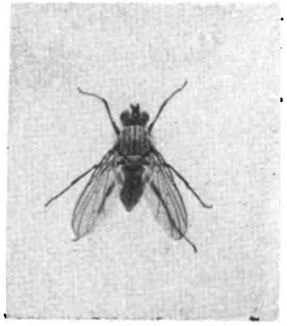

FIG. 192.—CABBAGE-ROOT FLY (×2).

(see p. 379).

General Work.—Use the hoe freely on all unmulched fruit quarters when the weather is favourable; not only will this destroy weeds but also greatly assist the trees and bushes in carrying their crops by maintaining a soil mulch and preventing loss of moisture by evaporation. Keep a sharp watch for pests and take immediate steps to combat them on their appearance.

FRUITS UNDER GLASS.

By T. Pateman, Gardener to Sir Charles Nall-Cain, Brocket Hall, Hertfordshire.

Cherries.—The fruits on Cherry trees planted out in borders in the cold orchard house will, in some cases, be nearing their ripening stage, and a little extra care must be exercised in watering, always bearing in mind that the ripening fruits are liable to crack if an excess of water be given at this stage of their development, while if the borders are allowed to become dry the fruits are liable to shrivel. It is sometimes difficult to withhold water from one tree without causing injury to another, unless early and late varieties are planted systematically. The later varieties, such as Elton Bigarreau and Florence, should be planted in separate borders so that they may be treated apart, otherwise attention with regard to watering will be found somewhat difficult.

Peaches and Nectarines.—The fruit of Peaches and Nectarines in the early house are approaching their ripening stage, and it will be necessary to reduce the amount of atmospheric moisture somewhat. At the same time, keep the roots well supplied with water, until the fruits are ripening, but even then the soil should not be allowed to dry out entirely. The grower must use his discretion when and when not to apply water at the roots during the ripening period. The fruits should be exposed to full sunshine to obtain good colour in them; a few leaves removed here and there will assist to this end. When the outside conditions are favourable the top ventilators may be left open an inch or so throughout the night.

Early Vines.—The Grapes on vines that were started into growth during December are ripening. While the roots must never lack moisture at this stage, the amount of atmospheric moisture should be reduced considerably, and the little water that is needed at the roots should be applied early in the morning. The actual amount of water needed at this stage must be left entirely to the grower's discretion; much will depend on the weather, which, when very warm, necessitates frequent small waterings to keep the berries plump. During sunless days no water should be used and the atmosphere kept drier. The house should receive an abundance of air during the day, but the amount should be reduced slightly in the evening: here, again, the grower must be guided by outside conditions. Slight shading may be used at this stage, but the vines should be exposed to full light at the earliest opportunity after the crop is harvested.

Outside Fruit Borders.—Usually after this date the outside borders of fruit houses will need attention in mulching and watering. Although at the time of writing we are having ample rains to keep the borders thoroughly moist, it is surprising how quickly even well-made borders dry out after a week of brilliant sunshine and keen, drying winds. To prevent this, it will be wise to have the mulching material in readiness so that it may be applied without delay, followed by a copious watering. Borders made of a somewhat heavy loam are very liable to crack if exposed to hot sun, especially if the soil is allowed to become dry, with the result that many of the fibrous roots are torn asunder. Attention in mulching and watering will prevent this injury.

FOR NORTHERN GARDENERS.

By A. T. Harrison, Gardener to the Marquis of Ailsa, Culzean Castle, Maybole, Ayrshire.

Cyclamen.—Young plants of Cyclamen latifolium, which are now growing freely and well-rooted in three-inch pots, should be shifted into pots five inches in diameter, using a rough compost of turfy loam and flaky leaf-soil, mixed with lime-rubble and wood-ash, and sufficient rough sand to render it porous. Do not over-water these newly-potted plants, as it is an easy matter to see that they do not suffer from drought without drenching them. I have seen a promising batch of Cyclamens ruined at this stage by careless watering; the soil became soured and no progress was made until the plants were knocked out of their receptacles and repotted. Old plants, if required for next season, should be removed to a cool house or frame and rested for six or seven weeks, giving them only an occasional watering.

Chrysanthemums.—Late-flowering varieties of Chrysanthemums should be ready for shifting into their flowering pots. Where large numbers are grown, it is the custom to pot up only part of the stock, the remainder being planted out in the garden, where they are staked and attended to in the usual way, but entail much less labour during summer. When well-set with flower-buds during September, these outdoor plants are carefully lifted and replanted in houses that may have been cropped with Tomatos. If well-watered when transplanted, they suffer comparatively little check. Where big blooms are required, however, the plants need to be grown in pots continuously and a good, rich compost used in order to ensure stout stems and healthy foliage.

Strawberries.—Litter of some sort is necessary to keep these fruits clean, and strawy manure from the stables is probably the best material. The latter should now be placed in position between the rows and worked under the foliage and immature fruits by hand. The straw will become bleached by the weather, the manurial properties washed down to the roots, and the straw left clean and odourless. The nets should be put on in good time if birds are troublesome as they do not wait until the berries are fully ripe before attacking them, and in dry weather have been known to eat the berries while they were green.

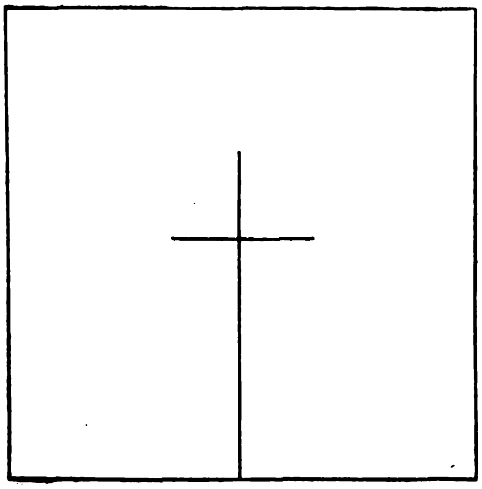

FIG. 193.—CABBAGE-ROOT FLY.

Diagram of Tarred Disc, showing method of cutting.

Actual size.

Salads.—Frequent sowings of usual salads are now necessary as warm weather soon causes these short-lived plants to be past their best. Copious supplies of water are required to enable them to grow quickly. Lettuces should be sown every three weeks, Radishes once a fortnight, and supplies of Mustard and Cress may be maintained by making sowings weekly.

Bedding Out.—This work should now be completed as rapidly as possible. If all the hardier subjects are in position as previously recommended, the intervening beds or spaces may now be filled, and only subjects which are easily injured by frost should be left to be planted after June arrives. These include Dahlias and Begonias; in some seasons it is an advantage to protect these tender plants with a few evergreen branches for a week or two after planting, removing the branches in the day time to prevent the growth becoming drawn.

CABBAGE-ROOT FLY.

THE beginning of attacks by the maggots of certain flies upon the roots of many vegetables, usually occurs during May. These attacks are most destructive and insidious, the more so because the gardener sees nothing wrong until his attention is arrested by the wilting of his plants, and then it is too late to do anything to save them, because the roots are destroyed.

It is the purpose of this article to give a short account of one of these destructive insects—the Cabbage-root fly—the times of appearance and other details of its life history, and the best method of prevention, which, in this case, is not only better than cure, but is the only method of procedure.

The vegetables which suffer most from the depredations of root-feeding maggots are Cabbages, Cauliflowers, Turnips and most of the Cruciferous plants, also Onions, Carrots, Parsnips and occasionally Celery and Parsley. It must not be thought that only one kind of fly is responsible for damage to the roots of these plants; on the contrary, there are three distinct species involved. In the case of the Cruciferous plants, the insect responsible is usually known as the Cabbage-root fly (Chortophila brassicae); then we have the Onion fly, (Hylemia antiqua), and finally the Carrot fly (Psila rosae), which causes losses to growers of Carrots, Parsnips, and occasionally Celery and Parsley.

The Cabbage-root fly appears about the middle of May in the northern counties, and rather earlier in the south. The female fly (Fig. 192), is a grey, hairy insect, somewhat similar to the house fly, save that it is of a lighter colour, and is characterised by a number of dark bands running longitudinally down the thorax; the male fly is smaller and darker in colour. The Cabbage-root fly hatches from the pupa or chrysalis in the soil in which it has passed the winter, and in a few days is ready to lay its eggs. These eggs are deposited in clusters, readily visible to the naked eye, usually on the stalk of the Cabbage plant or on the soil surrounding it. In a week the eggs hatch, and the small, whitish maggots make their way down through the soil and enter the roots, where they tunnel about, feeding upon the tissue.

The effect of this feeding is soon evident. The leaves become flaccid, changing colour to a bluish tint, which later becomes yellow, the plant finally collapsing and dying. If an affected plant is lifted, the maggots will be found in varying numbers, up to twenty, esconced in the main root, all the rootlets having been destroyed. After feeding for about three weeks the maggots become full-grown, leave the plant and enter upon the resting or pupal stage, in the soil, from which, in the course of about ten days, the adult fly emerges to continue the evil work of destruction. There are probably two such broods in the season, the second brood often being the more serious of the two.

What then can be done to save our Cruciferous crops from these maggots? There are two preventive measures which may give satisfactory control. Stress is laid on preventive measures because once the maggots are in the root, doubly protected by soil and root-tissue, there is no remedy. The fly, therefore, must be deterred from laying her eggs, and either of the two following methods will accomplish this. The first measure is known as the "tarred-felt disc," this consists of a small square of ordinary tarred roofing felt, about two-and-a-half inches square, with two slits—a long slit extending to a point about half-an-inch beyond the centre of the disc, and a short slit, three-quarters-of-an-inch long crossing the long slit at right angles in the centre of the disc (Fig. 193). This square is fitted around the stem of Cabbage or Cauliflower plant at the time of setting out, and arranged to lie flat on the soil surface (Fig. 194). It acts purely as a mechanical obstruction and prevents the fly from depositing her eggs in the desired position. It is essential for the efficacy of this device that it should lie quite flat upon the soil surface, otherwise the insect will creep underneath and deposit her eggs.

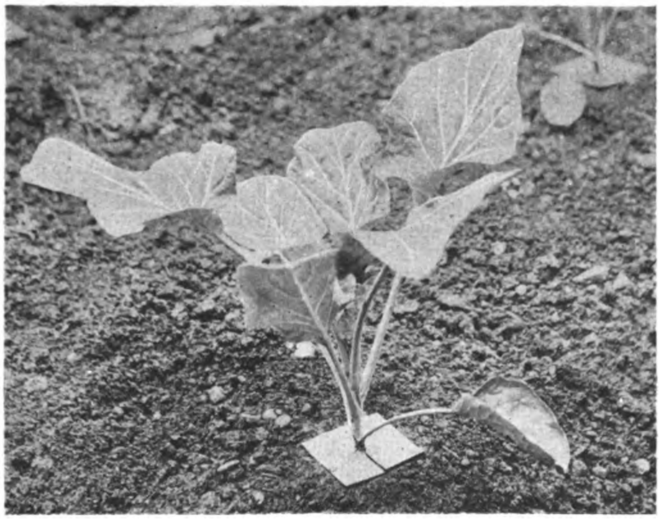

FIG. 194.—CABBAGE-ROOT FLY; SHOWING TARRED DISC IN POSITION.

The tarred-felt disc is an excellent preventive of Cabbage-root fly, but is perhaps most suitable to a small number of plants, owing to the initial trouble of fixing. It may be recommended confidently to the gardener for use in the kitchen garden, and may easily be cut with a pair of scissors from a piece of roofing felt.

I come now to the second preventive measure, much in use in Canada and the U.S.A. This consists in dosing the plants about a week after planting out with a solution, in water, of corrosive sublimate (mercuric chloride). The solution is used at the rate of one ounce of sublimate to eight gallons of water, so the actual cost is small. Apply about half-a-pint to each plant, taking care to wet thoroughly the soil immediately surrounding it. In using this substance, two important points must be noted: firstly, corrosive sublimate is exceedingly poisonous, so it must be kept away from animals or irresponsible persons; secondly, the solution should be mixed in a wooden vessel as the mercury is liable to affect metal containers Dissolve the sublimate in a small quantity of hot water and make it up with cold to the right amount after it has dissolved. The sublimate does not dissolve readily in cold water. Two applications at intervals of a week should be sufficient. *K. M. S., Manchester.*

ALPINE GARDEN.

CHRYSOGONUM VIRGINIANUM.

CHRYSOGONUM VIRGINIANUM is well adapted for a place in the rock-garden. It is a hardy perennial and may be increased by division of the root-clumps, either in autumn or spring, though, as in some localities it commences to flower very early, perhaps the first-mentioned season is the more favourable.

Its flowering period extends over three or four months, usually commencing from the middle of April; the star-shaped, yellow flowers, each about an inch across, are produced freely throughout the season.

This Chrysogonum flourishes best in a semi-shaded position and its soil requirements are not hard to provide; good loam to which a little leaf-soil has been added and also a small portion of grit or sand seems to be a very satisfactory rooting-medium. *W. H.*

CYTISUS ARDOINII.

THIS species is one of the choicest of the dwarf Brooms and among the best of the smaller rock-garden flowering shrubs. Though long known to our gardens, it has never become common, and even to-day one does not often see it well represented. This may be accounted for by the fact that it is rare in its native habitat, the Maritime Alps, owing to the fact that it is so closely grazed by goats that the seeds seldom come to maturity. Still, it is procurable from some nurserymen, and it may be specially recommended for planting on a warm, sunny ledge in light soil.

Of all the lesser Brooms, C. Ardoinii has flowers of the richest yellow. These are very large for a plant seldom exceeding six inches in height, and they are produced liberally from April onwards for five or six weeks. Though the plant sets seeds, these do not often yield true seedlings where other Brooms are grown, for C. Ardoinii hybridises freely. Among the best of the hybrids with C. Ardoinii as a seed parent is the well-known C. × Beanii, and the larger and elegant C. × kewensis. *J.*

ANDROSACE CARNEA.

NOT a few of the Androsaces present difficulties in their cultivation, but some species grow well in the average rock-garden or small rockery. Of such is Androsace carnea, from the Pyrenees and the Swiss Alps, which has proved satisfactory in gardens for many years. There are forms, it is true, which are not so good as others, yet none is so inferior as to be justly despised. A good variety is charming. It forms a little tuffet or mat of small, emerald-green leaves, varying in size in different plants, and these are decorated in summer with loose heads of several flowers, on stems not generally more than two or three inches long. The flowers are of a lovely pink in the best varieties, and the aspect of the whole plant is truly fascinating to the lover of alpines.

The plant should be grown in a sunny place and in a compost of loam, leaf-soil and peat, mixed with sand and grit and plenty of stone chips. It may be propagated by division or seeds. Not a few of the many forms are frequently offered under specific names or varietal titles. The one named A. carnea eximia has flowers of a glowing pink, and it is one of the best of the varieties. A. carnea Laggeri, it is claimed, should have specific rank, but authorities differ on the point. In catalogues, however, it is frequently offered as A. Laggeri, so that those who desire to secure it may find it under that name and not grouped with others under A. carnea. Its flowers have been well described as of a glowing rose. Once established, A. carnea and its forms require little attention beyond occasional top-dressings, working some free, gritty soil into the tufts with the fingers. One special point in its cultivation which I refer to last for the sake of emphasising it, is that A. carnea is a plant of the granite rocks and should be planted in soil free from lime, for as M. Correvon remarks, it "fears the chalk." *S. Arnott.*

DELPHINIUM NUDICAULE.

THIS dwarf Larkspur provides a patch of red colouring in the rock garden during the summer, and, in addition, it possesses most of the good points common to the family.

It is easily raised from seeds and will thrive in a sunny position in well-drained, sandy loam; it is perennial but not, as a rule, very long-lived.

The flowers are red, produced in loose racemes; the prominent spur being nearly twice the length of the calyx; the tripartite leaves are rather fleshy, and the plant grows from twelve to eighteen inches high.

This Delphinium is a good plant for any rock garden, large or small, a few examples providing welcome colouring which continues over a long period. The species was introduced from California in 1869 and is figured in *Bot. Mag.*, t. 5819. *Ralph E. Arnold.*

INDOOR PLANTS.

JAPANESE MAPLES.

VARIETIES of Acer palmatum and A. japonicum grown for conservatory decoration are at their best in early spring, when the intense colouring of the young foliage is most pronounced. There is a great variety of form and colour within the limits of the two species named; certain varieties are upright in habit, others tend to develop laterally and, after growing in tubs for half-a-century, may not be more than six feet high.

As a flowering shrub Acer japonicum filicifolium is distinctly ornamental. The bright red flowers hang in clusters from the first pair of deeply-cleft, green leaves. Varieties conspicuous by reason of the colour of the young foliage include the fine bronze Oshuberi, the rich purple A. palmatum atropurpureum, the ruby-coloured A. p. septemlobum rubrum, and, by way of contrast, the golden yellow A. japonicum aureum. The Fern-like A. p. dissectum variegatum and A. p. roseo-marginatum have variegated foliage; A. p. laciniatum has highly-coloured, finely-cut leaves; while in A. p. reticulatum the network of prominent veins is green with the interspace yellow, green and cream.

During the early stages of growth ventilation should be carefully attended to, the foliage being very liable to scorching, and a watch should be kept for aphides which quickly disfigure the leaves. Later in the season a leaf-eating maggot is troublesome and should be hand-picked.

The choice varieties are grafted on strong-growing stocks, and all growths appearing below the graft should be removed. *Fred W. Jeffery.*

THE GAS-HEATED GREENHOUSE.

THE management of even a small greenhouse is not such an easy matter as it used to be a few years ago. Labour is scarce and expensive, and the amateur gardener who at one time was able to afford to pay the wages of a man to stoke his greenhouse furnace, is often obliged to either do this himself or else give up the raising and growing of half-hardy plants. For the heating of small and medium-sized greenhouses the gas-fire heater promises to be a most efficient, convenient, and economical appliance which is clean in use, thoroughly reliable, needs no attention after it is once lighted, may be brought into use at a moment's notice, and can be dispensed with by the turning of a tap.

For those who are anxious to have automatic control of the minimum temperature in the greenhouse and to keep the consumption of gas low at times when the heat of the sun is sufficient to keep the house warm, there is now on the market an ingenious, little, air-controlled thermostat which can be set to function at any desired degree.

If it is necessary, for example, that the temperature should not drop below 50° Fahrenheit, the thermostat is set so that it automatically increases the consumption of gas so soon as the temperature in the glasshouse tends to fall below 50°. Should the sun become more powerful during the day and raise the temperature inside the house above 50°, the thermostat automatically reduces the gas consumption to a very small amount until the heat drops below 50°, when the gas is automatically turned up again. The actual gas appliance should always be fixed outside the glass house so as to guard against any possible escape of the products of combustion, which might be liable to injure delicate plants.

The installation of a modern gas-heated boiler will open up all sorts of fascinating possibilities, and it is so simple to manage that it may be attended to by any member of the family or staff. *Robert W. Ascroft.*

TREES AND SHRUBS.

RHODODENDRON DICHROANTHUM.

THIS handsome Rhododendron (Fig. 196) was shown in excellent form at the recent exhibition of the Rhododendron Society, where its flowers attracted a great deal of attention from the general public as well as from enthusiasts. The species was discovered by Mr. George Forrest, in July, 1906, in shady positions on the eastern flank of the Tali Range, in western Yunnan, at an altitude of from 9,000 feet to 10,000 feet. The flowers are broadly tubular and borne in five to seven together in a loose umbel. The colour appears to vary a great deal, and forms have been variously described as having creamy-rose, yellowish-rose, purplish-red and orange flowers. Those illustrated in Fig. 196 were bright purplish-red, approaching an orange shade.

At present the species is not sufficiently widely distributed in cultivation in this country to determine its degree of hardiness, but it has been flowered by several Cornish growers, and a cool, damp slope, an eastern or north-eastern exposure, sheltered from wind, and no shade overhead appears to be the conditions most suitable for it.

R. dichroanthum belongs to the neriiflorum series and is closely allied to R. neriiflorum.

RUBUS ARCTICUS.

THIS tiny Raspberry, which does not usually exceed six inches in height, is a cheerful subject in spring. Before the end of March a good-sized colony had yielded the first of its pinky-crimson blossoms, which are large and conspicuous for so small a shrub, and by mid-April it was a mass of bright colour, shown in relief against the pale green foliage. Being a native of the far north, R. arcticus is unquestionably hardy, and it is an easy plant to cultivate almost anywhere in cool conditions. Shade is generally advised, but I find that if it is planted in a naturally damp soil, freely intermixed with leaf-mould, it does better in full sun, the growths being sturdier and closer and the blooms of better quality.

Though a "runner," R. arcticus does not spread unduly. In any event it is too small and frail ever to become a nuisance in that way.

As this Rubus is apt to get somewhat dull and uninteresting when the flowering is over, it is a good plan to associate with it some lowly carpeting plant. Veronica canescens is admirable for the purpose, its pale blue flower associating well with the flowers of the Rubus should the latter continue blooming, as it sometimes does, into the later summer and autumn. This Veronica has a reputation for tenderness, but in these gardens it has survived one of the worst winters on record, and in low-lying, moist soil near water. *A. T. Johnson, Ro Wen, Talycafn, North Wales.*

RIBES AUREUM.

This Flowering Currant is a pretty shrub that will succeed almost anywhere. It makes a loose-habited bush of about five feet in height, the Gooseberry-like leaves, often bronzed when young, being immediately followed in early April with the pendulous racemes of golden-yellow flowers. These latter make an attractive show, especially when the shrub is seen against a dark background.

The blossoms have a sweet, aromatic fragrance, and the yellow, tubular calyx adds materially to the effect during the flowering period. The plum-black fruits are not especially attractive, but R. aureum undoubtedly excels in its autumn colouring, the leaves assuming rich shades of bronze and crimson-scarlet before they fall. For the latter alone the Buffalo Currant is well worthy of a place in the open woodland or shrubbery.

R. a. var. aurantiacum is a form with a closer habit and orange-tinted, fragrant flowers, while the variety tenuifolium is a more robust shrub than either of the foregoing, with yellow fruits, but its flowers are distinctly inferior to those of the others. *J.*

ORCHID NOTES AND GLEANINGS.

HERSCHELIA COELESTIS (Lindl.)

SYNS. H. GRAMINIFOLIA (G. DON) AND DISA GRAMINIFOLIA (KER-GAWL.).

The genus Herschelia, which is closely related to the genus Disa, comprises about fifteen species of terrestrial Orchids, the majority having blossoms of high decorative value. The species under consideration (Fig. 195) is probably the most desirable of the whole genus, for it has very beautiful sky-blue blossoms—a colour comparatively rare amongst Orchids. It is a native of the south-western portion of Cape Colony, being found in the Cape, Caledon, Bredasdrop and Swellendron divisions from a few feet above sea-level to an elevation of about 2,000 feet. and is therefore not sufficiently hardy for cultivation outdoors in any part of the British Isles. In its native habitat it grows amongst grasses and reeds in damp places, generally in open, sunny spots, where its flowers are fully exposed to the sun's rays, while its tubers are in cool, moist earth which is never quite dry, even when the plant is at rest; in the growing season it is saturated. In South Africa H. coelestis usually blooms during the later part of February continuing in flower throughout the month of March.

The tuber is somewhat irregular in shape, fairly large, and has a few stout, waxy-white roots springing from just above where the underground stem and tuber meet. The bright green leaves, from four to six in number, spring from the base of the stem near the ground line; they are from eight to fourteen inches long, narrow and grass-like, curving gracefully outwards, and are usually beginning to turn brown when the blooms are in perfection. The thin, wiry flower stem is from one to two feet tall and is very rigid; in colour it is dark green tinted with purple, and is clothed with a few inconspicuous, linear, sharply-pointed bracts. The flowering portion of the stem takes the form of a spike from two to four inches long and bears from two to seven flowers, about one-and-a-quarter inch across the sepals. The sky-blue dorsal sepal is hooded, about three-three-quarters-of-an-inch in length, broad, deeply concave, with a short conical spur on its back; the lateral sepals are also sky-blue, oblong in shape, fairly blunt, just over half-an-inch in length, and are frequently reflexed against the ovary. The petals are curiously distorted and almost hidden within the hooded dorsal sepal; they are dilated at the base, narrow in the middle, and expand at their tips into an oblong segment with wavy margins; they are sky-blue with bright green tips. The lip is about half-an-inch in length, oblong in shape, blunt at the tip, which is usually much curled under, and its edges are undulated. In colour the centre of the lip is very pale blue, or at times white margined with deep purple—a very beautiful contrast. The column is well-developed and is pure white with a pearly sheen. The anther is bent back and is invisible from the front of the blossom.

The cultivation of this beautiful plant is attended with some difficulty on account of the lack of sunshine when it is developing its leafy growth and blossoms. A compost of chopped Sphagnum moss, peat and rich fibrous loam may be used; the pots in which the specimens are grown should be well-drained, and the tubers buried about two inches below the surface of the compost. The roots should be kept saturated with water during their period of active growth; when at rest the soil should be kept just moist enough to prevent shrinkage in the tubers. Re-potting, if desirable, should be carried out immediately the flowers fade, for the plants are then going to rest. In its native country, the plants ripen seed freely, but under cultivation here, propagation by offsets is the only practical method of increase. *A. W. D.*

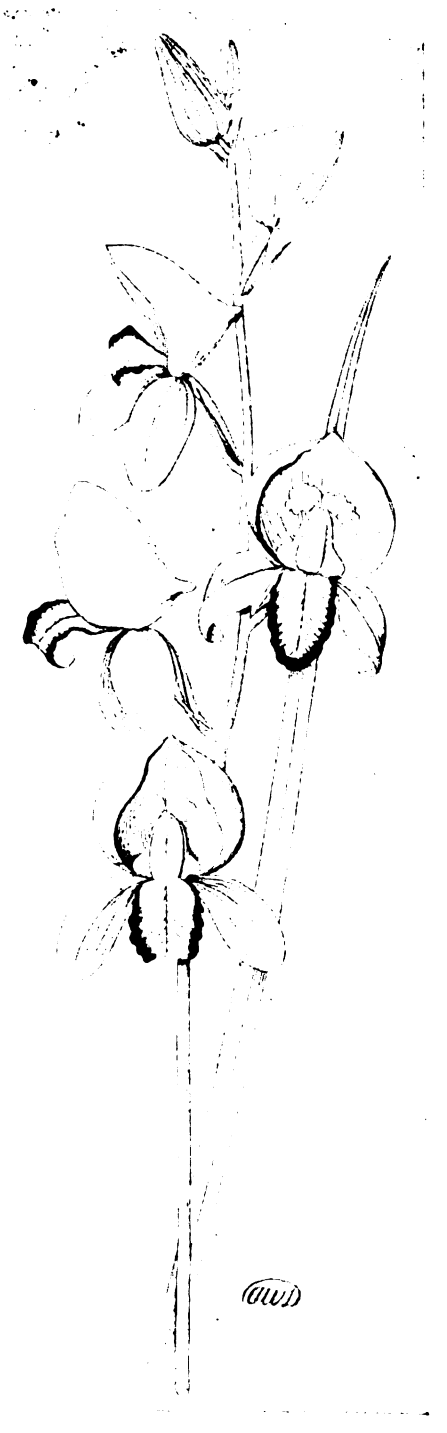

FIG. 195.—HERSCHELIA COELESTIS.

FRUIT GARDEN.

BIENNIAL FRUITING OF APPLES.

Mr. W. H. Divers (p. 344) draws attention to a very important subject. The biennial bearing habit is, in my opinion, the true cause of many of the crop failures which are attributed to frost, cold winds, unripe wood, etc. Any commercial grower who could find practical means of overcoming it would reap a rich reward, for he would secure full crops in years when Apples are scarce.

There seems to be no doubt that the habit is inherent in certain varieties, though I think that nearly all have some tendency towards it. The fruiting of any particular variety of Apple does not occur all over the kingdom in any given year, though it does tend to do so over fairly wide areas; different trees or blocks of the same variety do not, however, necessarily agree in their "on" and "off" years. For instance, I have one row of Golden Spire. Five trees at one end of the row, which came from a different source from the rest, crop in one year and the other trees in the row bear in the next. They have done this for years. Again, blocks of Bramley's Seedling which fruit in one year are almost certain to be barren the next, and *vice versa*. Most of my trees of this variety which carried a heavy crop last year have hardly bloomed this season, but those that were barren last year now give great promise.

There occasionally occur exceptions which cannot, apparently, be explanied, such as the one to which Mr. Divers refers. I have one old block of Bramley's Seedling which has borne heavy crops for two years in succession and looks like yielding a third crop this season. I cannot account for this in any way, as other trees in the same plantation have received exactly the same treatment.

As to the reason for the biennial fruiting habit, research workers seem to be practically agreed that the problem is nutritional. I am told that varieties which are given to biennial bearing in the open can be made to crop every year under glass, where feeding of the tree is more under control. If we ever learn to correct the habit out-of-doors, it will probably be by means of manuring, perhaps in conjunction with pruning. It has been proved that thinning the fruit is no remedy. The late Mr. Hodsoll claimed to overcome the habit by a system of manuring with quick-acting organic fertilisers in early August. Certainly he secured regular crops for several years, but, as no proper control trees were arranged for, the experiment cannot be considered conclusive. I made some attempt to test the plan, and thought it gave some indications of success, but nothing conclusive. It is, however, a matter for research stations; and I think it is worth trying. We are told that trees are fruitful only when they contain in their wood plenty of stored carbohydrates and a moderate amount of nitrogen—a state roughly indicated by a moderate amount of annual growth. The solution of the problem would seem to lie in the finding of practical means of keeping the trees in this conditions. Trees which are in the early years of bearing conform most closely to this state; and certainly such trees are fairly regular in bearing. The biennial habit is liable to develop as the trees get older, becoming more thickly studded with fruit-spurs and probably making less growth, a condition indicating an excess of stored carbohydrates and too little nitrogen. The thinning of the spurs, ample manuring, and hard pruning of annual growth would seem to be the remedy, but it all wants proving. There are so many exceptions and so many factors to upset results in orchard conditions that one despairs of getting definite results. I often look at my trees and try to reason out why certain are bearing and others failing, but the exceptions upset all one's conclusions. I am surprised that Mr. Divers finds Lane's Prince Albert a regular bearer. With me it is one of the most definitely biennial-cropping varieties. *Market Grower.*

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NATIVE PLANTS AS A GUIDE TO SOIL AND TREE PLANTING.

In the formation of woods and plantations, one of the principal considerations to be taken into account is the suitability of the trees for the soils they are to occupy, and in dealing with this all-important question, guidance of a most reliable nature will often be found in a study of the vegetation that covers the ground. The need for such a study is emphasised by the fact that many instances could be pointed out in which the affinity of trees and soil was not taken into account at the time of planting, with the result that the crop of timber is a failure. Some of the lands of the New Forest may be cited as an instance, where, as pointed out by Lord Lovatt, Chairman of the Forestry Commission, at the last meeting of the Federated Home-grown Timber Merchants' Association, trees planted eighty years ago are only comparatively a few feet in height.

Other instances that have come under notice of late are in the county of Nottinghamshire, including a plantation of Sweet Chestnut, the trees in which were, after sixty years' growth, only eighteen feet in height, and contained on the average five cubic feet of timber. It is a well-known fact that certain species of plants favour particular soils to the exclusion of others, and the forester in surveying a piece of land on which tree-planting is to take place can often form a good opinion of the kinds that are most likely to succeed by a study of the accompanying flora. Where Heath, Blaeberry and plants of a similar kind are growing, the native and mountain Pine will succeed, but in such a soil neither the Oak nor Sycamore should be planted, while a crop of Bracken and Bramble is a sure indication that the general run of hardwoods may be planted with every chance of success. The Marram Grass, or Sea Matweed, Lyme Grass, Horned Poppy and Bugloss are found where the Maritime and Aleppo Pines can best succeed, in almost pure sand by the sea-coast, while the Mat Grass and common Bent are usually regarded by the forester as favourable indications of the quality of soil for the cultivation of several species of trees, the Larches in particular. Broom, Gorse and Juniper are usually found growing on loamy soils of fair quality in which a number of trees will succeed. Few wild plants will prosper beneath the shade and drip of Beech trees, and it is a common saying amongst foresters in the north, that "the Beech is like the Scotch factor, who thrives himself, but takes good care that no one beneath him does likewise."

There are, however, a few plants, such as the gregarious Dog's Mercury, that thrive beneath its shade, and some of the finest clumps of Beech in this country are either fringed with or, when of tall growth, carpeted with this plant. With the Elm we usually associate the Nettle and wild Carrot, while the Hornbeam favours an undergrowth of Holly, as may be seen in Epping Forest and elsewhere.

Where the dwarf Willow, Myrtle and Cotton Grass abound, drainage will be necessary before even the Alder, Poplar and other damp-loving trees can succeed in a satisfactory way. Among wild grasses, where the annual Poa flourishes, there the Turkey Oak seems to be most at home, and on mud flats the Spartina—as on the mud banks of the Hampshire coast, where both species are particularly abundant—indicates that Willow, Alder and the Black Italian Poplar are most at home.

In forming a plantation for shelter-giving purposes in Wales, where the land was of a very diversified character and quickly undulating, the writer had little difficulty in determining, from the wild plants and grasses, which trees were likely to succeed on the various classes of soils, a course that was largely adopted. Where slate rock cropped up, and the Parsley and Hay-Scented Ferns occurred in large numbers, it was well-known locally which trees did best, and the same where the Juniper and Gorse grew plentifully, while in low-lying hollows where the Vaccinium, Cotton Grass, Sundew and Sphagnum tenanted the soil, the common Spruce, and a few other damp-loving species were mainly included.

Both the Goose Grass and Purple Heath Grass are sure indications that the soil is poor and ill suited to trees in general, and this may also be said of the Sundew and Sphagnum, which cover large areas of the Irish peat bogs, where drainage and general land reclamation should be taken in hand before tree-planting of whatever kind is engaged in.

In the formation of a plantation in Kent, where the soil was largely composed of chalk, the surface vegetation gave clear indications of the particular kinds of trees that were most likely to succeed, while a choice of such trees and shrubs as already succeed in the district proved of great value, and a repetition of such is to be recommended. Chalk-loving plants include the Maple, White Beam, Guelder Rose and Rock Cistus, whilst amongst introduced species the Austrian Pine, common Juniper, Leycesteria formosa and St. John's Wort all thrive well. The Milkwort is usually found growing in soil that suits the Hazel, and the same peculiarity of certain trees for particular tracts of ground where other species flourish is noticed. The above include a few of the wild plants, the presence of which rarely fails to indicate the particular kinds of soil in which they are found growing, and forms a reliable guide as to the trees that are most likely to succeed under similar conditions. From this it will be inferred that, in connection with the formation of plantations, a good knowledge of our native plants is all-important, and it has always appeared to me that the man with a technical knowledge only labours under a grave disadvantage, and cannot, in such a matter, be thoroughly efficient until he has spent some time at practical work, both in the field and forest. *A. D. Webster.*

GARDEN NOTES FROM SOUTH-WEST SCOTLAND.

It may have puzzled some others than myself to understand how the name Syringa, the generic title of the Lilac, which belongs to the Oleaceae, has come to be used popularly to designate the Mock Orange—Philadelphus coronarius—belonging to the Saxifragaceae. In turning over some early volumes of Curtis's *Botanical Magazine* lately, I chanced upon what may have been the origin of the confusion of names; at least it shows that it is of very old standing. Tab. 183 represents the common Lilac, with the following note:—"*Syringa vulgaris*. The flowers of the Lilac possess a considerable degree of fragrance, but not of the most agreeable kind. Our readers, perhaps, will not be displeased to hear the opinion of old Gerarde on this point, delivered in his own words: 'They (the flowers) have a pleasant, sweete smell, but in my judgement they are too sweete, troubling and molesting the head in a very strange manner. I once gathered the flowers and laid them in my chamber window, which smelled more strongly after they had lien together a few howers, with such a pontioke and unacquainted savor that they awakened me from sleepe, so that I could not take any rest until I had cast them out of my chamber.'"

Now Gerarde was writing not of the Lilac—Syringa vulgaris—but of the Mock Orange—Philadelphus coronarius. It was some time before Dr. Sims, editor of the *Bot. Mag.* became aware of the error. Six years later, in the volume for 1797, he inserted the following note:—"*Philadelphus coronarius* . . . . . by mistake attributed to the Lilac: this the reader is requested to correct and pardon."

Not until last year did I become possessed of, or even acquainted with, a very attractive member of the Heath family, to wit, Phyllodoce Breweri, perhaps more commonly known as Bryanthus Breweri. A native of the Sierra Nevada of California, it does not exceed a foot in height, flowering in May, in compact terminal racemes of bright rose blossoms, the ovary appearing as a bright greenish yellow spot in the middle of each flower, surrounded by ten stamens which, being freely extruded, add much to the rich effect. Presumably the colour of the flowers varies; for as it grows here, they are of far deeper rose, approaching crimson, than is shown in the *Botanical Magazine*, t. 8146. As it has carried its hibernating flower-buds unhurt through last winter—the most destructive we have experienced since 1894-5—this pretty plant may be pronounced absolutely hardy.

The splendour of the exhibits at the Rhododendron Society's show in April will doubtless add impetus to the cultivation of a fascinating genus of plants. It is to be hoped that the enthusiasm of those forming a collection will be tempered with discretion, for the full beauty of the species, whereof there is such bewildering abundance to choose from, can only be displayed in a suitable environment. The vehement colour of such early flowerers as Rhododendron barbatum, R. fulgens, R. neriifolium, etc., and the delicate tints of R. Fargesii, R. Augustinii, R. Griffithianum and many others are most apt to be marred or misused through mistakes in arrangement. Quite recently I stood before a magnificent tree of five-and-twenty feet high of R. Russellianum (arboreum × causcasicum). It was loaded with crimson trusses, whereof the effect was rendered positively disagreeable by the blazing orange of a large Berberis Darwinii in front of it. Here were two plants, each destroying the surprising splendour of the other.

An instance on a smaller scale is at hand as I write. Beside a nice bush of Rhododendron glaucum, with highly coloured flowers, had been planted Saxifraga Delavayi, in my opinion, the best of the Megasea section. The bush and the herb flowered simultaneously with disagreeable jarring of colours that interfered with one's enjoyment of either of them.

To develop the character as well as to display the beauty of Rhododendron species any attempt at formal arrangement should be scrupulously avoided. Showy hybrids may be used effectively in that way, as may be seen every season in the beds in front of Buckingham Palace; but the natural species are children of the wild, and it grieves one to see them ranged in ranks or crowded into clumps. The ideal arrangement is to plant them at irregular intervals in an open woodland or on the sides of a dell so that they may be viewed at a distance as well as close at hand. Happy are those who have command of space for such purpose; but even in grounds of very moderate dimensions choice specimens may be grown without any risk of formality. Where room has been found for the ubiquitous Cherry Laurel or the somewhat aggressive Rhododendron ponticum, there are sure to be some sheltered nooks that may be assigned to such treasures as, say, R. oreotrephes or R. cinnabarinum Roylei. *Herbert Maxwell, Monreith.*

NOTES FROM EDINBURGH.

DESPITE the inclement weather the rock-garden display, although a little late, bids fair to rival the display made in May of last year. Cold winds, rain and slight morning frosts have accounted for many fine blooms, especially in such genera as Meconopsis, Primula and numerous dwarf Rhododendrons of the Lapponicum and Saluenense groups.

The genus Meconopsis, still too uncommon in gardens, never fails to interest plant lovers. M. grandis, a perennial species, takes pride of place for its large flowers, the dark violet colour of the buds changing to a beautiful blue when fully expanded. M. simplicifolia (Bailey's form), and the port-wine-coloured variety, both commend themselves in this group. M. aculeata M. Prattii, M. Prattii alba and M. rudis are all worthy of mention. They are comparatively easy to cultivate and should be treated as biennials, seeds being sown each year to ensure a succession of flowering plants in May. M. quintuplinervia, a perennial, and of a "running" habit, is characteristic in having a single flower on each stem. It is a delicate light blue-flowered species, with pendulous and nodding blooms. It is best planted in a moderately damp situation with plenty of space for its underground stems to extend freely.

M. latifolia is showing some well-balanced spikes which are not yet past the bud stage, but this species is too valuable to be left out of the group. It might be termed an all-round plant, as it is easy to establish and seeds never fail to germinate when self-sown. Its flowering period extends for weeks, and the delicate shade of blue makes it a warm favourite. The now well-known M. integrifolia and its forms contrast finely with other species by their large, yellow flowers, now at their best. Many of the plants have produced numerous flowers on the stem, and if grown *en masse* this species is among the most showy of the members of the genus. Meconopsis, as a whole, require half-shade, and a good, rich compost. M. latifolia and M. Wallichii (a woodland plant) are gross feeders. They should certainly be more commonly seen in our gardens.

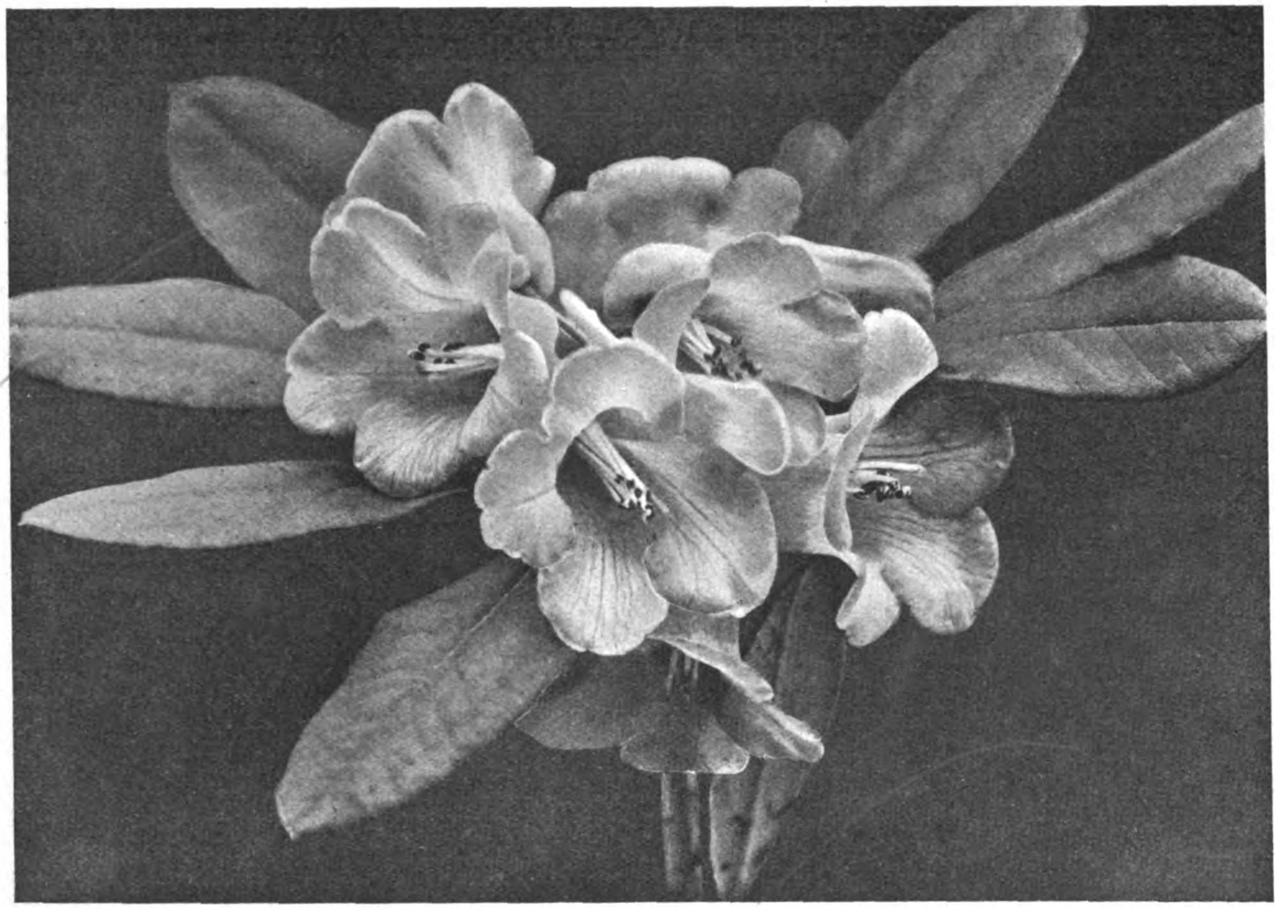

FIG. 196.—RHODODENDRON DICHROANTHUM.
(see p. 380).

The Primula family is so large that I shall enumerate only a few species which are attractive plants. Enough has been written lately of the more common ones, but it is advisable to include some of the Chinese subjects at present in flower. From seeds collected by Captain Ward, two Primulas of exquisite beauty have been raised, and are at present in flower in this garden. P. Baileyana (two to six inches high) has six to eight violet-coloured flowers, half-an-inch across, produced in a whorl. The under-surface of the leaf and leaf petiole, also the flowering stem, are beautifully coated with white meal, giving it a most attractive appearance. P. Cawdoriana (six to eight inches high) has three to five beautiful, drooping, lavender-blue flowers, borne on a slender stalk which rises above a rosette of serrated leaves. This species, if hardy, will make an admirable addition to the rock garden, and will compare favourably with P. nutans, which is not yet in flower.

In the Muscarioid section, attention is drawn to P. muscarioides, P. deplexa and P. apoclita. All are noted for their aggregation of small, tubular flowers in a close spike. They look best when planted in large masses, and their cultivation is easy. Seeds should be sown each year to ensure a succession of healthy plants. P. conica and P. cyanantha are also worthy of mention.

Two other species of note, in flower this month, are P. flexilipes and P. Menziesiana. Both are worthy of a place in the rock garden. The former is dwarf in habit and likes a moist situation, preferably in or near a bog. In colour, the flowers are not unlike those of P. sikkimensis. P. Menziesiana (six to eight inches high), with dark purple, drooping flowers, has only to be grown once to ensure it becoming a permanent resident of the rock garden.

Three species of the Omphalogramma section are worthy of special mention. P. vinciflora, P. Farreri and P. Franchetii. This section differs from other Primulas in having large, ebracteate flowers on the scape; the calyx cut into five or eight segments, and the corolla six-lobed. The flowers of P. vinciflora are this year fully developed, the largest as broad as a half-crown, and of a beautiful blue colour; they make a wonderful show growing in a moist, well-drained, shady situation. P. Farreri differs from the latter in colour of flower, having a purple corolla with the throat tinged with creamy white. It is a slow grower and requires the same treatment as P. vinciflora. P. Franchetii has also given an added interest to the group, having flowered this year. In colour, it is like P. vinciflora, but differs only in having a white throat. The flowers are large and tubular. It revels in a well-flooded situation under ample drainage conditions.

The New Zealand group of Celmisia species continue to flower from now onwards into midsummer. In spite of adverse climatic conditions they never fail to attract attention by their giant Daisy-like flowers, borne on long stalks, free from the spreading foliage. They succeed here best in dry, sheltered places, and greatly assist in brightening the dark rock faces. Among the hardy species are C. verbascifolia, C. petiolata C. coriacea, while P. viscosa and P. longifolia never fail to give a good account of themselves year by year. C. viscosa is shorter of stem and of a spreading nature; it is one of the best for culture in the north.

Another New Zealand plant of the same order (Compositae) is Helichrysum bellidioides. When established, its carpet-like surface is dotted with numerous star-like, white flowers. It is at home in a dry, sunny situation. Many Armerias are showing flower, but the favourite is A. caespitosa. This has been in full bloom for there weeks. The foliage is completely covered with pale pink inflorescences. A native of Spain and Portugal, this species grows best when planted in a dry position facing south. *A. McCutcheon.*

ROYAL HORTICULTURAL SOCIETY.

EXHIBITION AT CHELSEA.

May 25, 26, and 27.

MANY Chelsea Shows have come and gone, and on several occasions there have been various difficulties to overcome ere the great annual British horticultural event became a success. This year there was a period when the possibility of holding Chelsea Show was distinctly remote, but, fortunately, the general strike ceased in time for the exhibition to be held with a postponement of only one week, Never has there been quite so much excitement and concern regarding the show held in the grounds of the Royal Hospital, and never—notwithstanding postponement and transport difficulties—has there been a finer exhibition than the one under review or one more favoured by the weather, which was delightfully fine without being oppressively warm in the tents. Regarding the display as a whole, it was larger than ever; in the matter of quality it lacked nothing in respect of its predecessors: while in colour and elegance it surpassed many we have in mind—the effect of the strike upon the show was like that of an unpleasant dream from which one awakes to find, after all, that the sun shines and all the world is a pleasant place. So fine is the determination and enthusiasm of horticultural exhibitors that the Chelsea Show contained not even a trace of the effect of recent labour troubles and it was appropriate that the Council should pass a special resolution "placing on record its high appreciation of the exhibitors' efforts to maintain the high standard of the Chelsea Show in the most trying circumstances."

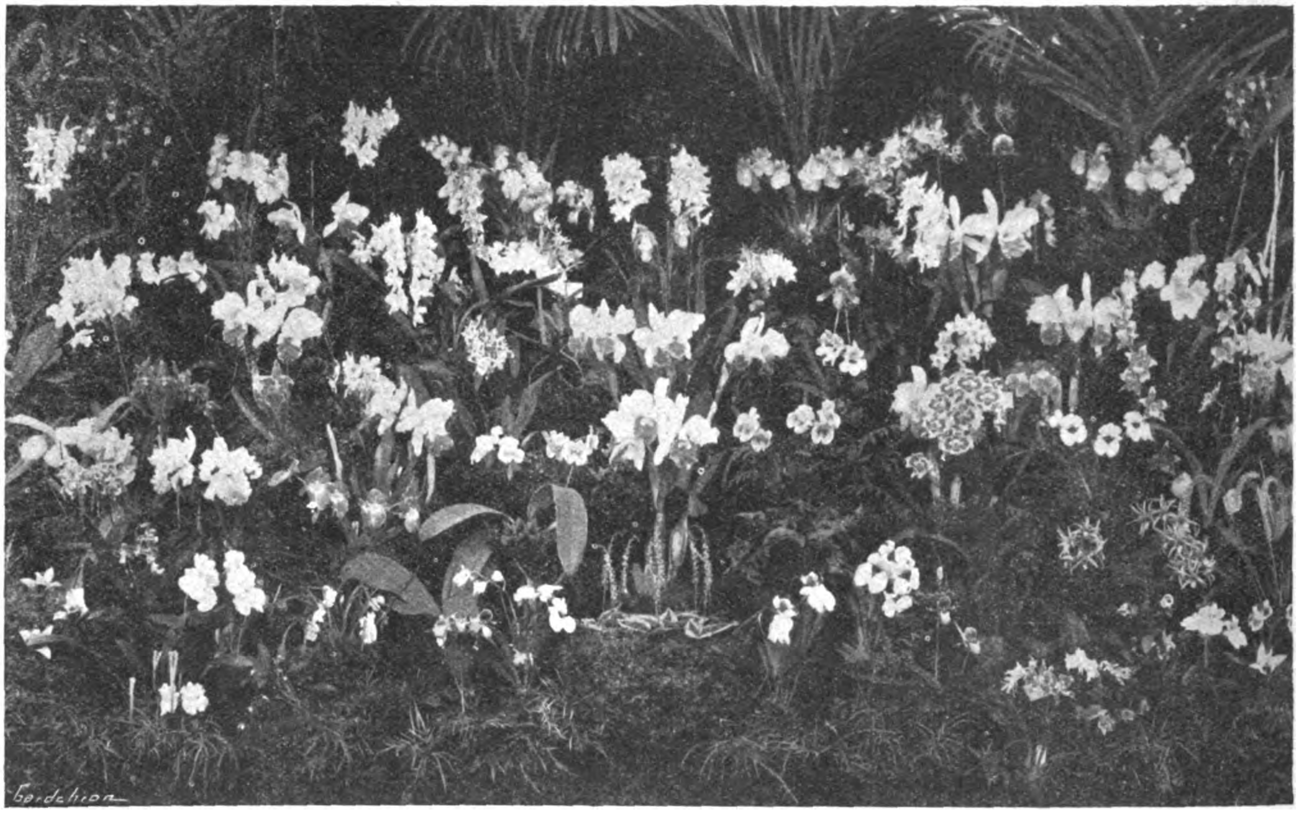

FIG. 197.—CHELSEA SHOW: MR. H. T. PITT'S GROUP OF ORCHIDS TO WHICH THE AMATEURS' ORCHID CHALLENGE CUP WAS AWARDED.

At the Press lunch on the day before the show opened, Sir William Lawrence referred to the fine spirit that had animated the exhibitors, to the great help rendered by the police, to the generous courtesy of Major-General H. C. Sutton and the Royal Hospital Commissioners, and to the large amount of time and labour given by members of the council. He also paid a well-deserved tribute of praise and thanks to the R.H.S. staff, and specially complimented Mr. A. Simmons the assistant secretary. To this tribute we add our own, because the difficult task of reporting this gigantic show is rendered easier by the courtesy and ready assistance of the R.H.S. officials.

Rock gardens were more numerous than before, and we think, better than usual, while the formal and informal gardens arranged out-of-doors provided features of great interest and must have given inspirations to many garden owners. Orchids were scarcely so abundant as on other occasions; they occupied the greater part of a special tent, where thousands of wondering admirers joined with Orchid lovers in inspecting the brilliant colouring and varied form supplied by those aristocrats of the floral world. Greenhouse plants were so finely shown that they merit a special word of praise, especially the displays by Messrs. SUTTON AND SONS, Messrs. J. CARTER AND CO. and Messrs. BLACKMORE AND LANGDON.

Their Majesties, the King and Queen, visited the show early on the opening day and spent a considerable time inspecting the exhibits, in all of which they showed that keen interest which betokens a knowledge of the subject. The royal visitors were escorted by Lord Lambourne, President of the Society and Sir George Holford, and were obviously pleased with the success of the show.

Orchid Committee.

Present: Sir Jeremiah Colman, Bt. (in the chair), Mr. Gurney Wilson (Hon. Secretary), Mr. S. W. Flory, Mr. Arthur Dye, Mr. F. K. Sander, Mr. Stuart H. Low, Mr. J. E. Shill, Mr. W. H. Hatcher, Mr. H. Brooman White, Mr. J. Cypher, Mr. H. T. Pitt, Mr. Robert Paterson, Mr. A. McBean, Mr. J. C. Cowan, Mr. H. W. Smith, Mr. Charles H. Curtis, Mr. E. R. Ashton, Mr. T. Armstrong, Mr. C. J. Lucas, and Mr. H. G. Alexander.

FIRST-CLASS CERTIFICATES.

Cattleya Wolteriana var. Rex (Queen Mary × Rajah).—A large and handsome Cattleya with very broad, mauve-coloured petals and narrower sepals; the lip is mauve at the base and has a yellow throat, but the broad, frilled apex is rich rose-purple with a light mauve edging. Shown by Messrs. COWAN AND CO.

Odontoglossum crispum var. Prince Disraeli.—In this superb variety the flowers are of the finest size and substance and of good shape; they are white except for a little pale rose shading on the lower sepals. A wonderfully fine Orchid. Shown by J. J. **Bolton**, Esq., (gr. Mr. Lyne), Claygate, Surrey.

Cattleya Titriana, The Dell var. (*C. Mossiae Reineckiana* × *L.-C. Canhamiana Rex*).—A gorgeously beautiful Orchid, and one of the finest and largest Cattleyas we have seen. The big petals are a lovely shade of soft rose-mauve, as are the sepals, while the immense lip has a broad, crimson-purple, frilled apex and a wide golden-yellow base and throat. Shown by **Baron Bruno Schröder** (gr. Mr. **Shill**), Dell Park, Egham.

Awards of Merit.

Laelio-Cattleya Chloris var. Vivid.—Four large flowers of this handsome Cattleya were shown on one spike. In the spread of its deep-veined, light mauve-purple petals the flowers measure not less than eight inches; the sepals are narrower and paler. The lip is intense royal purple, except for a lighter mark at the apex and a pale yellow throat. Shown by Messrs. **Sanders, Ltd.**

Cattleya Dr. M. Lacroze var. Excelsior (*Tityus* × *Octave Doin.*)—A very fine Cattleya of large size and good form and beautifully attractive colouring. The wide petals are pale mauve and the narrower sepals are even paler. The lip has a wide, ruby-purple and frilled apical half, the base being light to bright yellow, this colouring also filling the throat. Shown by **Robert Paterson**, Esq., Cathcart, Glasgow.

Cattleya Prince Shimadzu var. Superba (*Tityus* × *Hardyana*).—In this large-flowered variety the wide petals are deep rosy-mauve and the big lip bright rose-purple with yellow base and throat. Shown by **Robert Paterson**, Esq., Cathcart, Glasgow.

Miltonia Princess Elizabeth var. superba (*vexillaria G. D. Owen* × *a form of unknown parentage*).—An unusually distinct and interesting addition to the now numerous members of this class of Orchids. The sepals and petals are pale blush, almost white, and the large, prominently bilobed lip is of similar colour in so far as that organ is not occupied by an unusually large, spreading mark of intense dark chocolate-red colour. Shown by Messrs. **Black and Flory.**

Cattleya Prince Shimadzu var. Delicata (*Tityus* × *Hardyana*).—A lovely Orchid with very large flowers, in which the wide, wavy, margined, blush white petals and the white sepals form a fine setting for the splendid yellow-based lip, which has a mottled mauve-purple apex. Shown by H. T. **Pitt**, Esq., Rosslyn, Stamford Hill.

Odontonia Pittiae, Rosslyn var. (*M. Bleuana* × *Odm. Harryanum*).—A richly coloured variety of an interesting bigeneric hybrid. The lip is very large for the size of the flower, and of deep rose-purple shade with paler markings around the small orange and brown mask. The sepals and petals are of similar colour with a few white spots and speckles and a white margin. Shown by H. T. **Pitt** Esq., Stamford Hill.

Miltonia Lucia (*vexillaria Ruby* × *Princess Margaret*).—A distinct and highly coloured hybrid, and although the plant was small the flowers were large and very attractive. The sepals and petals are ruby-crimson and the lip deep rose colour with deeper veinings. The mask at the base of the lip is dull orange surrounded with a scalloped design in pale-rose. Shown by **Robt. Paterson**, Esq., Cathcart, Glasgow.

Brasso-Laelio-Cattleya Caleyula, Gatton Park var. (*L.-C. callistoglossa* × *B.-C. Cliftonii*).—A wide-spread flower with very substantial rosy-mauve petals and sepals of similar colour. The frilled lip is bright purple with a yellow throat. Shown by Sir **Jeremiah Colman**, Bt. (gr. Mr. Collier), Gatton Park, Reigate.

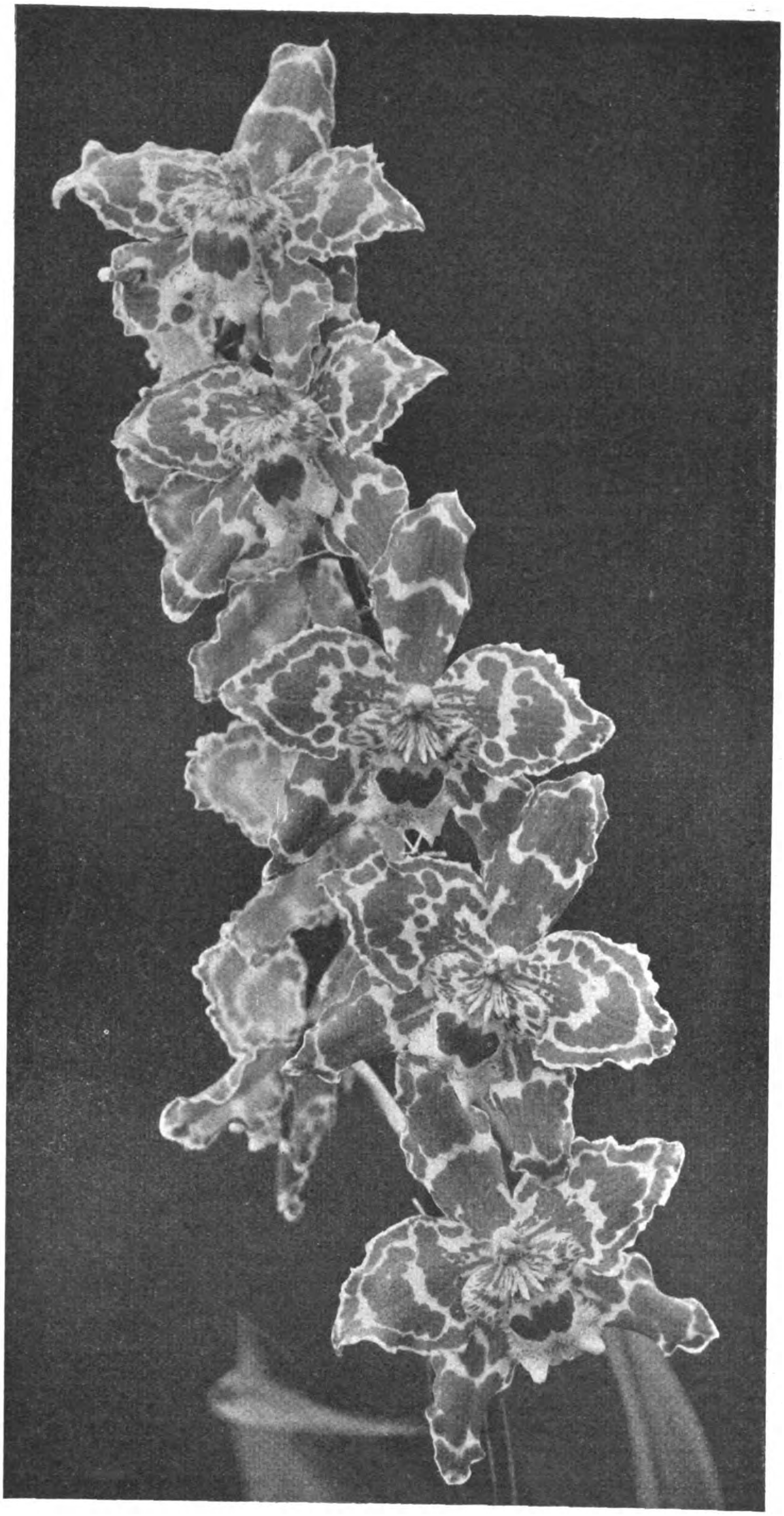

FIG. 198.—CHELSEA SHOW: ODONTIODA PRINCESS ELIZABETH, SHOWN BY MESSRS. CHARLESWORTH AND CO.

Odontoglossum Tyntesfield (parentage unrecorded).—A bold flower of large size and capital form. The ground colour is white and on this there are many markings of light rosy mauve. Shown by Dr. **Craven Moore**.

Groups.

Among the many fine groups of Orchids the amateurs' exhibits were conspicuously good although not numerous. The largest, contributed by Sir **Jeremiah Colman**, Bt. (gr.

Mr. J. Collier), Gatton Park, Reigate, attracted a great deal of attention and much generous comment on the part of professional growers. Hybrid Cymbidiums and Palms provided a pleasing background, while Cattleya Skinneri, Temple variety, occupied a central position surrounded by grand specimens of Lycaste Skinneri var. Mrs. Hamilton Smith, L. S. var. Robin, L. S. alba and L. Imschootiana. Dendrobium acuminatum was finely shown, as on many previous occasions, and a number of hybrid Epidendrums lifted their heads of flowers above the Cymbidiums in the background. Other especially noteworthy subjects from Gatton were Odontoglossum crispum var. Sunrise, with red-brown, conspicuous markings on the petals; Brasso-Laelio-Cattleya Caligula, Gatton Park var.: Laelio-Cattleya San Juan var. Gatton Queen, Lycaste Locusta, the rich yellow Odontoglossum Wilckeanum var. Colmanii, and Masdevallia Coradella.

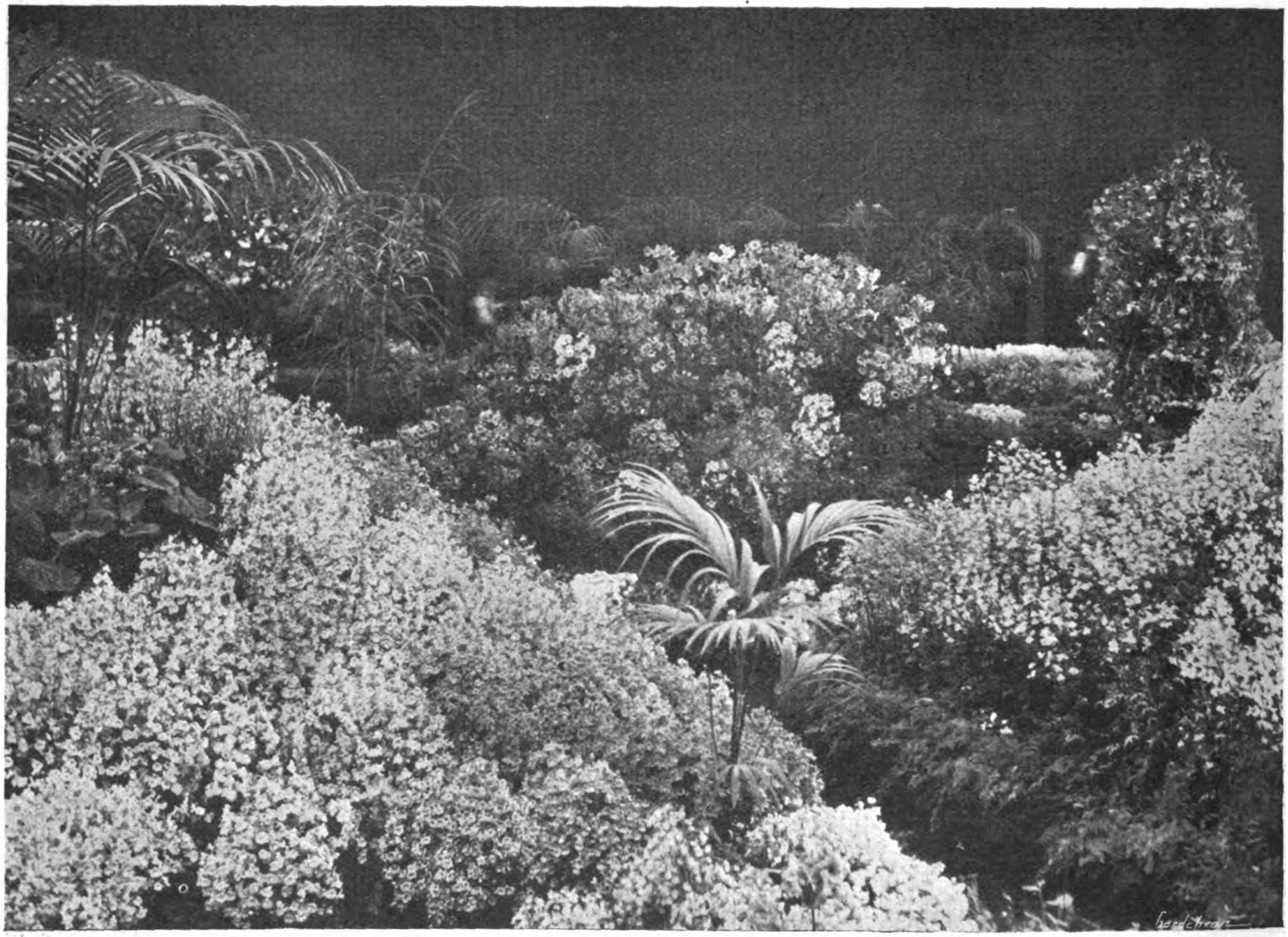

FIG. 199.—CHELSEA SHOW: PART OF MESSRS. SUTTON AND SONS' EXHIBIT OF GREENHOUSE PLANTS TO WHICH THE SHERWOOD CUP WAS AWARDED FOR THE BEST EXHIBIT IN THE SHOW.

Mr. H. T. **Pitt** (gr. Mr. Thurgood) had a delightful exhibit of Orchids (Fig. 197) which was a fine demonstration of the continuously fine cultivation carried on at Rosslyn, Stamford Hill. There were many capital plants, notably Cattleya Hassallii, Cowan's var., C. Dr. Lacroze, C. Prince Shimadzu, Dendrobium acuminatum, Odontoglossum Peerless var. Jas. McNab, of fine form; the fine Miltonia Wm. Pitt, Odontonia Pittiae, Chondrorhyncha Chestertonii, Maxillaria Sanderae, Promenaea Crawshayana, Coelogyne corrugata, Lycaste Locusta, Epidendrum Medusae and Angulosa Clowesii.

One of the largest trade groups of Orchids was arranged in their usual fine style by Messrs. **J. and A. McBean**. The arrangement, with a groundwork of deep green moss was very pleasing, as every plant stood out distinctly. It is impossible in the space at command to enumerate all the good things in this exhibit, but a few that arrested our attention were the golden-orange Laelio-Cattleya G. S. Ball, with seventeen flowers; Odontioda Flamingo, of brilliant hue; O. Thela, with larger but less vivid flowers; O. Chanticleer, Cymbidium I'Ansonii, Miltonia Lyoth, Odontoglossum Arcturus, O. eximium xanthotes, O. mirum aureum, and the finely-marked O. Arabic derived from O. eximium and O. Midnight.

Messrs. **Charlesworth and Co.** also arranged a corner group and exhibited in their usual excellent style. This firm made fine use of their splendid hybrid Odontoglossums, the arching spikes of these and of Odontiodas producing a charming effect. In this group also every plant stood clear of its neighbour, and there was not the slightest suggestion of crowding in the arrangement. A few outstanding plants from a very fine selection included the brilliant cream-yellow and rich red Odontioda Princess Elizabeth (Oda. Madeline × Odm. Britannia) (Fig. 198), named after the new infant Princess; Odontoglossum crispum var. Mrs. Stanley Baldwin, of grand form and size; Odontonia Baroness Schröder; Miltonia Lucia (M. v. rosea × M. Princess Margaret), with ruby-crimson sepals and petals, and a deep old rose-coloured lip; Laelio-Cattleya Fascinator, Odontoglossum Phillipsianum aureum, with thirteen yellow flowers; Odontioda Latona, the quaint Bulbophyllum virescens with an umbel of eight green and mauve flowers; Cypripedium niveum, Coelogyne burfordiense, the lovely Odontioda Colombia, and the old Oncidium Papilio.

Cymbidiums were the great feature of Messrs. **Sanders'** exhibit, and of these popular subjects they displayed large examples of C. Dryad, C. Pauwelsii and C. Ceres, in variety. Besides these, such fine subjects as the pendant Cattleya citrina, Aërides Houllettianum, Phalaenopsis Rimestadiana in large numbers; the pure white Cattleya Magali Sander, Dendrobium atro-violaceum, Miltonia Queen Mary, M. vexillaria Memoria G. D. Owen, and M. Charlesworthii were conspicuously good and pleasingly associated with Odontiodas and Odontoglossums, and a number of rare and interesting "botanical" Orchids.

Messrs. **Cowan and Co.** contributed a graceful display with a large specimen of the old Selenipedium macrochilum as a centrepiece, backed by Cymbidium Louisa, C. Pauwelsii and large spikes of Odontoglossum crispum. In front were finely-grown examples of Brasso-Laelio-Cattleya Jupiter, Cattleya Wolteriana, in variety, Laelio-Cattleya Hassallii alba and Brasso-Cattleya Shilliana. Other Orchids represented by admirably-grown plants were Odontioda Grenadier, O. West Point Beauty, O Chanticleer, O. Induna (Thwaitsii × Rolfei), Odontoglossum crispum xanthotes and various Miltonias.

Messrs. **Armstrong and Brown** had a group arranged with a very low foreground and modest pillars of Orchids behind. This arrangement was very pleasing and greatly admired. Some of the choicer kinds were Coelogyne pandurata with a long spike of its green and black flowers; Dendrobium acuminatum: three grand specimens of Cypripedium Curtisii, and equally good C. barbatum, C. Lady Rowena, C. Curtisii Sanderae, C. Vipanii, Coelogyne Mooreana, Epidendrum Medusae, the very handsome Odontoglossum Victory Supreme, Odontioda Gold Crest, of rich red colour with golden disc, and a great variety of excellent hybrid Odontoglossums, Dendrobium, Victoriae Reginae, and a large Laelio-Cattleya callistoglossa.

Messrs. BLACK AND FLORY had a corner group in which the plants were arranged at a low level, but each one was distinct from its neighbour. Cattleya Prince Shimadzu var. delicata, the white C. May Queen, and C. Chelsea were good examples in the Cattleya group. Miltonias were well represented by M. Wm. Pitt, M. Lyoth, M. Bleuana and M. Venus, and the new M. G. D. Owen var. Princess Elizabeth, in which the lip is almost covered by the dark mask. Other interesting plants included Dendrobium Thwaitesiae, Cypripedium bellatulum, and the fine C. J. M. Black.

Messrs. J. CYPHER AND SONS' contribution was a very bright one, and if not quite so large as usual, it lacked nothing in interest. Drooping specimens of Selaginella caesia made a capital foreground for this display in which were capital examples of Brasso-Cattleya Veitchii, with four fine flowers; Laelio-Cattleya Martinettii, L,-C. Hyeana, Dendrobium atro-violaceum, D. chryotoxum, Cypripedium Maudiae, C. Chamberlainianum, Cochlioda Noezliana and a large variety of Odontoglossums and Odontiodas.

A nicely arranged group came from Messrs. MANSELL AND HATCHER, whose Miltonias were a fine feature. These included M. Lyoth, with five graceful spikes; M. Wm. Pitt of brilliant colour, M. Sanderae in variety, and M. Bleuana. Other good things were Odontoglossum citrosmum, very fragrant; Odontioda Royal Gem, O. Cooksonii, the deep red-brown Odontoglossum Hypatia, and several fine plants of Laelio-Cattleya Canhamiana.

Messrs. STUART LOW AND CO. exhibited a bright group, wherein spikes of Cymbidiums and Odontoglossums rose over other equally beautiful but lowlier subjects. Among the latter we noticed Sophro-Laelio-Cattleya Anzac, Cattleya Tityus, the handsome purple-lipped Odontoglossum Woodroffeae, of O. Rossii descent; Laelio-Cattleya Clarilaw, with orange-buff flowers; Odontioda Chanticleer, Brasso-Cattleya Monitor, Cattleya Skinneri alba; Cypripedium Rothschildianum, C. Chas. Sladden, and C. niveum grouped with C. Lawrenceanum varieties; Coelogyne pandurata and, at one side of the group, a goodly specimen of the long-spiked Oncidium McBeanianum.

In the small exhibit from Mr. HARRY DIXON, Cymbidiums and Odontoglossums were prominent, with Odontiodas and Cypripediums. Brasso-Cattleya speciosa, Laelio-Cattleya G. S. Ball and Bulbophyllum Lobbii also attracted attention.

Odontoglossum Ariadne, the white Cattleya Mary Sander, Dendrobium thyrsiflorum, with half-a-dozen pendant spikes of yellow and white flowers; Masdevallia Harryana, Dendrobium atro-violaceum, and Miltonia Blueana grandiflora, with five large spikes were notable Orchids in the exhibit arranged by Messrs. SUTTON BROTHERS.

Floral Committee.

Present (Section A): Mr. H. B. May (in the Chair), Mr. J. F. McLeod, Mr. Chas. E. Pearson, Mr. Hugh Dickson, Mr. F. Streeter, Mr. D. B. Crane. Mr. D. Ingamells, Mrs. E. M. Wightman, Mr. Jas. B. Riding, Mr. J. T. West, Mr. Wm. Howe, Mr. A. Vasey, Mr. J. M. Bridgeford, Mr. F. G. Cousins, Mr. Donald Allan, Mr. Arthur Turner, Lady Beatrix Stanley, Mr. W. H. Page, Mr. W. B. Gingell and Mr. Andrew Ireland.

(Section B): Mr. Chas. B. Musgrave (in the Chair), Mr. W. J. Bean, Mr. James Hudson, Mr. G. Reuthe, Mr. F. G. Preston, Mr. Amos Perry, Mr. E. H. Wilding, Mr. R. C. Notcutt, Mr. R. D. Trotter, Mr. Geo. Harrow, Mr. G. Yeld, Mr. Clarence Elliott, Mr. F. C. Stern, Mr. L. R. Russell, Mr. W. B. Cranfield, Mr. A. Bedford, Mr. R. W. Wallace, Mr. W. G. Baker and Mr. E. A. Bowles.

FIRST CLASS CERTIFICATE.

Primula Florindae.—One of Capt. Kingdon Ward's discoveries and referred to on several occasions in his letters published in these columns. The plant has a rosette of broad-bladed, long-petioled leaves of bright green colour, and from the centre of this distinct foliage rises a two-feet, slender, stiff stem, carrying at its apex a large cluster of soft primrose-yellow flowers that are more or less pendulous on their slender petioles, somewhat after the fashion of P. sikkimensis. When grown out-of-doors the leaves lie almost flat on the ground and under these conditions the widely-channelled petiole is a striking feature of what promises to be a first rate bog-garden plant. Shown by Messrs. OLIVER AND HUNTER, Moniaive, Dumfries.

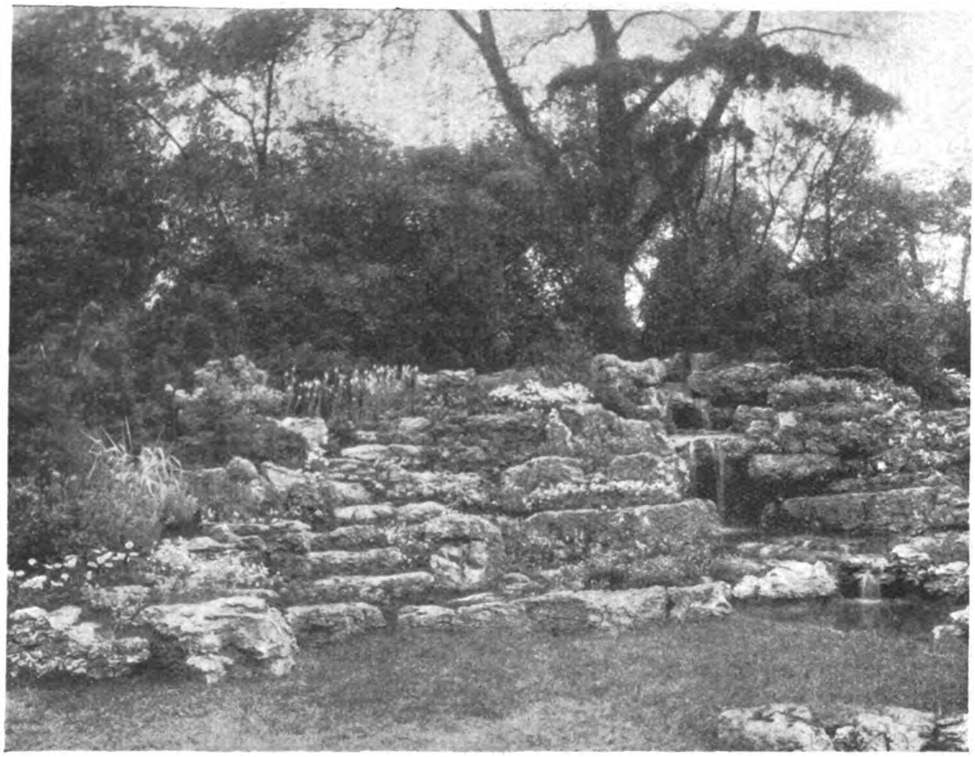

FIG. 200.—CHELSEA SHOW: MESSRS. PULHAM'S ROCK-GARDEN, AWARDED THE *DAILY GRAPHIC* CUP.

AWARDS OF MERIT.

Rhododendron Pilgrim.—A wondrously beautiful variety with widely expanded flowers about five inches broad carried in clusters of eight or nine blooms. The colour is lovely rose-pink with a few brown dots at the base of the lower segment. Shown by LIONEL DE ROTHSCHILD, Esq. (gr. Mr. A. Bedford), Exbury, Southampton.

Celmisia hieracifolia.—An interesting New Zealand plant with strap-shaped, spiny margined leaves that are light above and silvery white beneath. The white, Daisy-like flowers are composed of long florets and carried singly on foot long stalks. Shown by Lady ABERCONWAY and Hon. H. D. McLAREN (gr Mr. F. Puddle), Bodnant, N. Wales.

Primula flexilipes.—A slender little plant with petiolate, small bladed leaves about an inch wide. The flowering stems are a foot or so tall, slender, and bear a dozen or more small semi-pendulous lemon-yellow flowers of no particular beauty or attractiveness as exhibited. Shown by Mr. A. K. BULLEY, Neston, Cheshire.

Primula Cawdoriana.—One of the species discovered during Capt. Kingdon Ward's recent expedition and named after his travelling companion, Lord Cawdor. The small Papaver-like leaves, a couple of inches long, light green, and with deeply serrate margins, lie flat upon the ground, forming a little rosette; the ten-inch flower stem carries a compact, small umbel of about a dozen bright mauve, white-based tubular flowers in which the coloured part of the corolla is deeply divided into five parts and each division is bilobed at the apex. Shown by Mr. A. K. BULLEY, Neston.

Bomarea acutiflora var. punctata.—In this brilliantly-flowered variety the handsome clusters carry so many as thirty, tubular, scarlet flowers lightly spotted on the corolla, inside and out, with red-brown. A very handsome plant. Shown by A. A. DORRIEN-SMITH, Esq., Tresco Abbey, Isles of Scilly.

Campanula crenulata.—A small but charming little plant bearing its rich violet-blue bells singly, on six-inch stems. The bells are about as large as an ordinary thimble but have spreading lobes at the mouth. Shown by Mr. A. K. BULLEY.

Roscoea cautlioides var. Beesii.—In this variety of a fairly well-known plant the flowers are of palest cream-yellow colour. Shown by Mr. A. K. BULLEY.

Carnation Hebe.—A perpetual-flowering variety of distinct cerise shade. The flowers are large and the petals fringed. Shown by MESSRS. C. ENGELMANN LTD.

Carnation Dorcas.—A deep crimson perpetual-flowering variety of good size and form. Shown by MESSRS. C. ENGELMANN LTD.

Azalea Knap Hill Pink.—A delightful variety of the mollis type bearing large pink flowers with a broad yellow blotch on one segment. As shown it is a comparatively dwarf but very free-flowering variety. Shown by Messrs. HOSEA WATERER, Knap Hill, Woking.

Azalea Knap Hill White.—Of exquisite beauty, bearing large white flowers, each with one yellow blotch, this variety was the subject of generous admiration by all who saw it. Shown by Messrs. Hosea Waterer.

Azalea Valencia.—A vividly flame-coloured variety of the deciduous section. The flowers are of good size and borne in close clusters of a dozen or more. Shown by Lionel de Rothschild, Esq. (gr. Mr. A. Bedford), Exbury, Southampton.

Iris Watbract.—A quaint but nevertheless pretty Iris obtained by crossing I. Watsonii with I. bracteata. The flowers are small; the falls are green-edged, flushed with purple veined with violet, and have a yellow base. The standards are dull rose with blue veins. Shown by Mr. Amos Perry, Enfield.

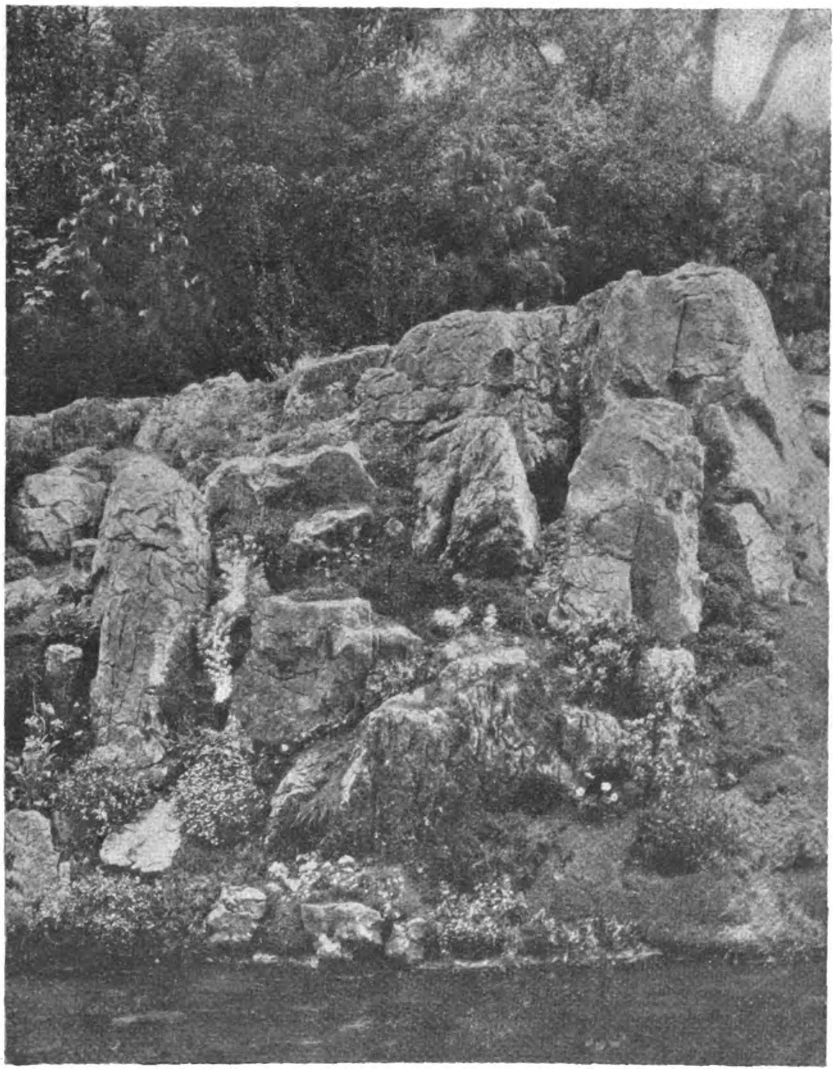

FIG. 201.—CHELSEA SHOW: VIEW OF THE ROCK-GARDEN WITH POOL. EXHIBITED BY CAPT. B. H. B. SYMONS-JEUNE.

Pelargonium Godfrey's Masterpiece.—This brilliant variety of the rough-leaved show section is a reminder of the popularity of these Pelargoniums in days gone by. The flowers are of excellent shape, of light orange-pink colour with a central flamed marking of rich maroon on each broad petal. Shown by Mr. W. J. Godfrey, Exmouth.

Rose Golden Salmon.—A dwarf, perpetual-flowering Rose of the Polyantha type. The flowers are lightly semi-double, 1¼ inch across and of a salmon-cerise shade; they are carried in elongated clusters. Shown by Messrs. Wm. Cutbush and Son.

Callicoma serratifolia.—A shrubby Australian plant that requires the shelter of a greenhouse in most parts of the British Isles. The lanceolate, deep green leaves are deeply serrated. The flowers are axillary at the ends of the shoots, and they possess little observable calyx and no corolla, being made up of stamens and collected into globular, dull white heads. Shown by A. A. Dorrien Smith, Esq., Tresco Abbey.

Melaleuca lateritia.—Another Australian shrub of graceful habit and belonging to the order Myrtaceae. The wiry stems are lightly clothed with linear, bright green leaves. The scarlet flowers are gathered together in Bottle-brush form and are very effective; they are also interesting, as the spike forms the base of a leafy branch. Shown by Rev. A. T. Boscawen, Ludgvan, Cornwall.

Adiantum emarginatum.—An elegant and yet sturdy Maidenhair Fern, about a foot in height. The pinnae are broad for the size of the plant and carried on short, black stipes. We believe it is a native of California and Oregon and according to American authorities the correct name is Adiantum Jordanii. Shown by Mr. Amos Perry, Enfield.

Stove and Greenhouse Plants.

In the Orchid tent, Messrs. L. R. Russell, Ltd., set up an admirable collection of stove plants which displayed tasteful arrangement as well as first-rate cultural skill. The suspended plants of Nepenthes, particularly that of N. Curtisii superba, and Columnea gloriosa were admirable specimens. In the general group there were many Caladiums of which the following were the very best: Golden Queen, Triomphe de Comte, Rising Sun, and the small-leaved minus erubescens. There were several plants of Medinilla magnifica bearing large, pendulous trusses of lovely flowers. Cordylines (Dracaenas) were well represented by highly-coloured plants and by C. Victoria. Aphelandra squarrosa was well-shown, and among the front of this fine group there were some good varieties of Begonia Rex.

On the opposite side of the Orchid tent there was a handsome collection of Caladiums exhibited by Henry B. Brandt, Esq. (gr. Mr. H. Cook), Capenor, Nutfield, Surrey. The plants were all finely grown and they made an imposing display. The chief varieties were Mary Archer, with large, greenish-yellow leaves; Rose Laing and Pintato of somewhat similar colouring. Excellent and Charlemagne are characterised by bright red veining and colouring; Mrs. L. R. Russell has beautiful crimson colouring; and Singapore is tinted with rose-crimson; while the Duchess of Teck is another variety of lovely rose shading. The old variety Candidum was splendidly shown, and along the front there were many plants of the valuable little species C. argyrites.

Caladiums were also shown by Messrs. John Peed and Son, who had good plants of the following: John Peed and Red Ensign, crimson and green; Improved Valse Bleu, of transparent beauty, and Thomas Tomlinson. In front, they displayed good strains of Streptocarpus and Gloxinias in circular groups flanked by Kalanchoe flammea and Hydrangeas in variety.

Messrs. James Carter and Co., Raynes Park, made a very charming display, characterised by an airy grace of arrangement, and a fine blending of soft and infinitely varied colours, such as only annuals can give. Schizanthuses formed a beautiful centrepiece, but they were not more effective than the fine strains of Cinerarias and Salpiglossis. A grass path illustrated the value of a setting of green for so many flowers. This detached the central portion of the exhibit from a narrow border forming four sides of an outer square, with raised corner pieces of Sweet Peas. Masses of more solid colour were provided by Gloxinias, Snapdragons and Calceolarias.

Messrs. Sutton and Sons, Reading, staged one of their unique exhibits of greenhouse plants grown from seeds. The form of the exhibit was a novel one, including large banks, eight feet to nine feet high, of Salpiglossis and Schizanthus (see Fig. 199) which, while forbidding an analysis of the whole from one spot, led the visitor on from one family of plants to another with continually varied interest. The group was of more value than usual, though perhaps less spectacular from its inclusion of a wide range of variety. The John Innes strain of Calceolarias, with graceful habit but dull shades of colour and small flowers were contrasted with the immense blooms of gorgeous colours of Sutton's Art Shades. Schizanthuses were shown in a colour scale from white to deep red. Cinerarias were especially fine and illustrated the progress in form in recent years. The collection of pink shades, for example, included the Stellata type of Little Pink Star, the Intermediate Pink, with dark and light centre, and the large-flowered type, Pink Pearl. A circular bed of Primula obconica grandiflora was also arranged, with rays of different colours.

Mr. H. J. Jones has exhibited Hydrangeas in quantity and of high quality at many former shows, but never in such magnificence as on the present occasion. He filled a very large space with superb plants arranged with great skill and taste. The heads of bloom were exceptionally large and, in addition to the usual blue and pink tones there were many other charming shades of colour. Rubis and Peer Gynt, in which the deep rich pink colour is shaded with gold are very delightful varieties. Parsifal is a beautiful frilled pink. Rhinegold was one of the very largest of the large varieties, and the flowers are a bright shade of pink. Madame Truffaut and Madame Riverain were the two best blues. Madame Moulliere is a very good white. Niege

Orleanaise has a large white truss, lightly flushed with pale pink. Goliath and Blue Prince both have large heads of flower of very uncommon purplish-mauve shades of colour.

A large group of greenhouse plants, illustrating their strains of seed, was exhibited by Messrs. EDWARD WEBB AND SONS. They filled a large corner space with admirable Schizanthus. of beautiful colours, Clarkia Double Scarlet, and New Blotched, Cineraria stellata and Salpiglossis in large masses in the background.

Schizanthuses were also well displayed by Messrs. TOOGOOD AND SONS, LTD., who associated with them plants of Nemesia Blue Gem, Cineraria stellata, Mignonette, Iris Rembrandt and Iris Catanus.

A considerable variety of stove and greenhouse plants was attractively grouped by Messrs. STUART LOW AND CO., who showed Anthuriums, Hippeastrums, Richardia Elliottiana, Acacias of several species, Metrosideros floribunda and Boronia heterophylla.

An admirable strain of Schizanthus grandiflorus maximus was illustrated by Messrs. WATKINS AND SIMPSON in a tastefully arranged group. The well-grown plants displayed a great variety of delightful colours. Associated with the Schizanthus was an equally desirable Calceolaria named Albert Kent. This variety is recommended for summer bedding, though it also makes an admirable pot plant, and we were informed that the variety comes true from seed. The plants are compact, very floriferous and bear large, shapely flowers of rich crimson colour, broadly margined with golden yellow.

The large-flowered Calceolarias which are valued for conservatory and greenhouse decoration, were well-shown by Messrs. DOBBIE AND CO., who had a large group of Calceolaria Dobbie's Perfection, which is a splendid strain of this showy plant.

A very decorative group of a valuable golden-leaved Coleus and their excellent selection of Primula obconica, was exhibited by the NAPSBURY MENTAL HOSPITAL (gr. Mr. W. J. Jennings), St. Albans. The Coleus is vigorous and highly coloured, and the Primulas bear large flowers of beautiful colours. A few specimen plants of Cordyline (Dracaena) Victoria added to the charm of the group. Senecio glastinifolius, a pretty greenhouse plant of considerable decorative value was shown extensively from the CHEADLE ROYAL MENTAL HOSPITAL (gr. Mr. A. Falconer), Cheshire.

Particularly good plants of the floriferous Calceolaria profusa Clibrani were displayed by F. W. A. DENNY, Esq. (gr. Mr. Thrower), Horwood House, Bucks. Messrs. W. AND J. BROWN arranged sturdy plants of a dark-flowered Heliotrope and Salvia splendens with cut sprays of Lilac.

Greenhouse Pelargoniums were splendidly shown by Messrs. W. GODFREY AND SON in round baskets. The very best of their many varieties were The Queen, salmon-pink with crimson blotch; John Innes of similar type, but slightly paler in colour; Fascination, pink with dark crimson blotch; and Cassandra, deep rose-pink with maroon blotch. Adjoining the Show Pelargoniums, Messrs. GODFREY arranged many plants of Campanula Pride of Exmouth, a semi-double variety of Telham Beauty habit, but hardier and of dark blue colour. A good selection of white Brompton Stocks, and the double scarlet Nasturtium were also shown. In another tent Messrs. GODFREY AND SON had a good selection of dwarf Schizanthus.

Excellent trusses of Zonal Pelargoniums were exhibited by Messrs. JARMAN AND CO., and by Mr. R. J. CASE. The former included Gustave Emich, M. L. Bisquet and Dr. Viallettes amongst the doubles, and Bombay, St. Louis, Sir E. Cassel and Uranus amongst the single-flowered varieties. Amongst Mr. CASE's single-flowered varieties were A. J. Macself, purple; Exquisite, rosy-pink; F. V. Penny, vivid scarlet; Janet Scott, rich orange; and Princess, clear pink. Of the doubles Dagata, rosy mauve; E. Herbert, salmon shades; and Louis, purplish-crimson, are very attractive.

An interesting collection of Cacti and allied plants, as small specimens, was exhibited by Mr. SYDNEY SMITH. Other exhibitors of Cacti were Miss WORTH and Mr. H. HEMSLEY.

Roses.

The postponement of the show did not seem to have had any serious ill-effects on the Rose exhibits, for the growers were able to set up excellent groups. At the Embankment end of the large tent, Messrs. CHAPLIN BROS. had a splendid group of pot plants. There were tall pillars and weeping standards of Lady Gay, Chatillon Rambler, White Dorothy Perkins and Excelsa, with dwarfer plants of La Reine Elizabeth and L'Ideal rising above massed vases of Ophelia, Mrs. Henry Bowles, Padré, Lady Hillingdon and other well-known varieties, while in front there were vases of Mrs. Herbert Nash, a very fragrant and well-formed H.T. of deep crimson colouring, and Maud, a beautiful pink H.T. Rose.

In the other large tent a similar position was occupied by Mr. ELISHA J. HICKS, who also had an admirable group, chiefly composed of pot Roses. His tall plants were of Evangeline, Minehaha, Lady Godiva and similar sorts. In this collection the rich crimson Polyantha variety La Reine Elizabeth was also shown in fine form. The H.T. varieties included Mrs. Henry Stevens, Margaret Horton, America, J. G. Glassford and Blossom, a shapely H.T. of good pink colouring.

A large corner space was admirably filled by Messrs. WM. CUTBUSH AND SONS with graceful Roses in pots and well-grown Hydrangeas. The Roses were all of the cluster-flowered type, such as Dorothy Perkins, Madame A. Kluis, La Reine Elizabeth and Chatillon Rose, with excellent batches of the new varieties, Golden Salmon and Locarno; the latter is a deep scarlet.

The graceful collection displayed by Messrs. A. J. AND C. ALLEN was composed of tall plants of Tausendschon, Paul's Scarlet Climber, Chatillon Rambler, Excelsa, Dorothy Perkins, and similar sorts rising above a good selection of dwarfer varieties. On the staging Messrs. FRANK CANT AND CO. had good specimens of Mrs. F. S. Harvey-Cant, Mrs. Henry Bowles, Comtesse de Cassagne, a fully double blush-coloured H.T., Chastity, Wm. Kordes, Roselandia and Capt. F. S. Harvey-Cant.

The centre of Mr. GEORGE PRINCE'S group of Roses was occupied by massed blooms of the lovely Lady Sylvia, flanked by Madame Butterfly, Coral Cluster, Betty and Shot Silk. In the front he had a small plant of the rare species Rosa simplicifolia (syn. berberifolia) a neat-growing little bush, bearing relatively large yellow flowers which have uncommon, bright crimson centres.

Pot Roses with cut blooms were well-arranged by Messrs. B. R. CANT AND SONS. At the back there were tall plants of American Pillar, Paul's Scarlet Climber, Lady Godiva and Hiawatha, while in front they displayed excellent blooms of Columbia, Sovereign, Rev. F. Page-Roberts, Padré and other well-known sorts. Messrs ERNEST PAUL AND CO. had massed vases of Madame Butterfly, Mrs. Henry Morse, Golden Ophelia and Molly Sharman Crawford.

On the staging attractive collections of dwarf Polyantha varieties were set up by the Rev. J. H. PEMBERTON and the DEVON ROSERY CO. The chief varieties were Echo, Edith Cavell, Juliana and Topsy.

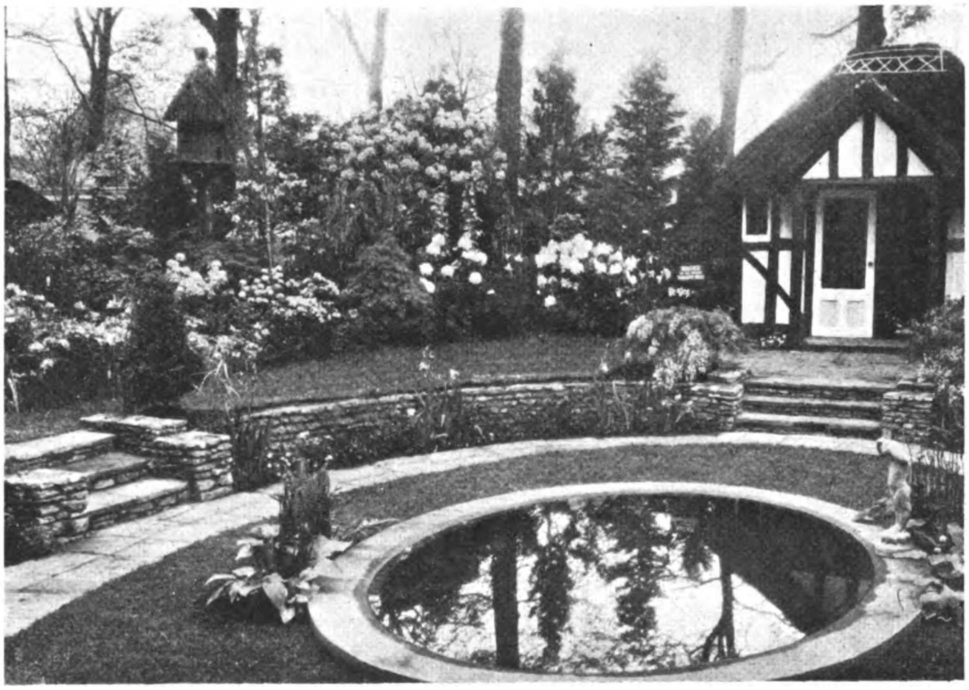

FIG. 202.—CHELSEA SHOW: MESSRS. R. WALLACE AND CO.'S FORMAL GARDEN.

Carnations.

The exhibits of these popular flowers included good groups of border and perpetual-flowering varieties, as well as a notable exhibit of Dianthus Allwoodii.

Messrs. ALLWOOD BROS. filled the end of one of the largest tents with an exhibit of Perpetual-flowering Carnations, border Carnations, and Dianthus Allwoodii. This was a very imposing display, and arranged in a most artistic manner. The perpetual-flowering Carnations had a background of black velvet, which enhanced the effect, and the group had an undulating front that permitted of bold corner pieces which took the form of raised baskets filled with sheaves of magnificent blooms of Laddie and White Pearl respectively. Other stands in the body of the group were filled with such fine sorts as Spectrum, Chintz, Shot Silk and Wivelsfield Fancy, whilst tall columns of Wivelsfield White at the back were conspicuous features, with imposing specimens of Phoenix Roebelinii as foils. The border Carnations and Dianthus Allwoodii were planted in small panels in grass, enclosed by a hedge of Cupressus. There was a terrace at the back which gave a natural appearance to the design. The more notable of the border varieties were Border Yellow, Grey Douglas, Thomas à Beckett, Salmon Clove and Lord Steyne.

Messrs. Stuart Low and Co. had a most artistically arranged exhibit of Carnations comprised of excellent blooms of a very large number of varieties. They made a feature of baskets of Topsy, overhanging the general collection, and other baskets on stands served to obviate an informal grouping. Of the many choice varieties the following are to be recommended for their fragrance: Philip Sassoon, maroon; Winter Glow, cerise; White Pearl, and Lady Inverforth, salmon.

Messrs. C. Engelmann, Ltd. had a group of Carnations of imposing size. The blooms were of superb quality and the colours were blended with great skill and effect. The centre of the group was composed of many hundreds of choice blooms of the Pink Laddie, and immediately below a sheaf of Red Laddie showed to advantage, with vases of the yellow Saffron on either side. Two very large epergnes were furnished with Topsy and Saffron, a pleasing contrast of colours, and other notable features were large batches of Surprise, Mikado, Katja, heliotrope; Mrs. Hamilton Fellowes, Master Michael Stoop, Betty Lou, Mary Allwood and Tarzan.

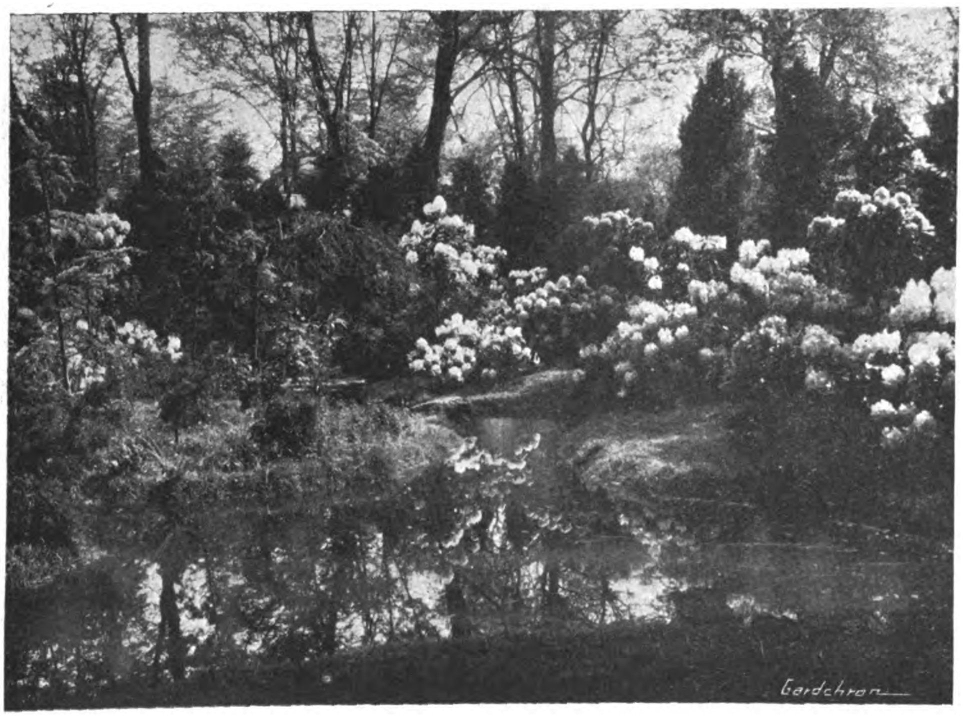

FIG. 203.—CHELSEA SHOW: "GARDEN OF REFLECTION," ARRANGED BY MESSRS. J. CARTER AND CO.

The Executors of Sir William Cain, Bt., displayed a group of Carnation plants, principally of Malmaison varieties, of grand quality. The two principal batches were of the Princess of Wales and Hon. Charlotte Knollys varieties, whilst the centre of the exhibit was filled with a selection of perpetual-flowering sorts.

Mr. J. Douglas displayed border Carnations of superb quality and in numerous varieties, the range of rich colouring being remarkable in a single flower. Moreover, many were of more than one shade, such as pale rose on yellow with blotches of scarlet. The varieties were not named, which is to be regretted at such an important show.

Messrs. Keith Luxford and Co. showed vases of many beautiful varieties of perpetual-flowering Carnations pleasingly arranged in a setting of Ferns, with a background of choice plants of Grevillea robusta.

Messrs. Lowe and Gibson showed border Carnations in association with Irises and Lilies. Such choice sorts as Mrs. E. Charrington, Bridesmaid, Maisie Lowe, Mrs. Olaf Hambro and Joan Wardale were exhibited well.

Messrs. Seymour and Anderson exhibited border Carnations in variety relieved with the greenery of Asparagus plumosus.

Mr. C. H. Herbert exhibited his border Pinks of which he has raised many notable varieties, such as Negress, crimson; Mrs. Herbert, soft pink with crimson blotches: The Imp, Queen Mary, Princess Elizabeth and Victoria.

Mr. J. C. Beck exhibited a group of a new perpetual-flowering Carnation named Mrs. A. A. Vlasto, a bizarre bloom of white and Petunia colour.

Begonias.

While tuberous-rooted Begonias were associated with other greenhouse plants by several other exhibitors, only Messrs. Blackmore and Langdon showed them as a separate exhibit, and finely as they have displayed them in the past, they excelled themselves on the present occasion. For the most part, the large group was composed of double-flowered varieties, and these were splendidly-grown plants bearing immense, yet refined blooms of most charming colours. The following are the names of only a few of the many desirable varieties so well set up: Queen of the Belgians, soft pink; Lord Lambourne, rich yellow shades; F. W. Walker, bright crimson: Mrs. H. W. Allan, rose-pink: Peace, pale primrose-yellow; and Mrs. E. Cairns, fluted white petals, edged with rose-pink. Suspended above the magnificent double-flowered plants were many perfect examples of their Basket Begonias. The names of the best are Lena, Eunice, Mrs. Belk, Mollie and Lettie.

Irises.

Immensely effective, both from the charm of its arrangement, the richness of its variety and the excellence of the cultivation revealed, was the group from Messrs. G. Bunyard and Co. Ltd. A centrepiece of Lilium longiflorum formosum and a few clumps of other Lilies and hardy plants were included, but essentially it was a display of bearded Irises, and a catalogue would be needed to chronicle the forms included Outstanding varieties noted were the white Purity; the "pink" Susan Bliss, Aphrodite and Rene Denis; the bicolor blues, Stamboul, Lord of June and Yeoman; the bicolor purple Le 27 Avril; the blue of Souvenir de Mme. Gaudichau; the yellow of Safrano and the bronze purples of Ambassadeur and Alcazar.

The Orpington Nurseries, Orpington, in a comparatively small space, showed one of the richest collections of Flag Irises. Although suffering somewhat from ineffective massing, no group in the show was richer in the best forms; the Iris lover especially appreciating the notes given on the labels as to the raiser and year of introduction. Istria, of Dykes, is a most beautiful white; Moonlight, pale yellow; Cretan, purple-black; Aphrodite, a rose pallida; Seminole, rose-crimson; Tenebrae, deepest purple, and Evadne, rose and bronze, were other newer varieties standing out from clumps of such excellent other kinds as Alcazar and Fro.

Mr. G. G. Whitelegg, The Nurseries, Chislehurst, brought a collection of seedling Irises mostly under number only, interesting as showing the trend of development, but insufficient in material to show any marked advance in colour or form.

Ferns.

Although the imposing groups of stove and greenhouse Ferns no longer find a place at the great Spring Show, Mr. Amos Perry continues to bring his splendid collections of hardy Ferns. On the present occasion he filled a large space with well-grown plants which displayed the fascinations of these plants to the fullest extent. His principal sorts were Osmunda regalis purpurascens, Osmunda regalis cristatum, Lastraea dilitata grandiceps, Lastraea lepidcta, Athyrium Filix-foemina laciniatum ramulosum, Athyrium gracile elegans, Athyrium plumosum elegans, Athyrium plumosum polydactylum, Polystichum aculeatum pulcherrimum, Polystichum angulare in several good varieties including P. a. setosum cristatum.

A small collection of stove or greenhouse Ferns shown by Mr. H. N. Ellison included Davallia tenuifolia Veitchii, Polypodium Hardianum, Gymnogramme Veitchii, Gymnogramme tartarica, Gleichenia dicarpa longipinnata, Microlepia platyphylla and a beautiful plant of Adiantum gracillimum.

In the Orchid tent Messrs. L. R. Russell, Ltd., exhibited in two groups the finest Tree Ferns that have been seen at a show for many years. These were mostly tall, splendidly-grown specimens of Dicksonia antarctica with a few equally tall examples of Cyathea dealbata.

Sweet Peas.

A particularly graceful collection of excellent Sweet Peas was exhibited by Messrs. Robert Bolton and Sons. The novelty of the exhibit was Magnet, a magnificent light pink variety bearing four and five large, beautifully waved flowers on long stalks. What Joy, of creamy yellow colouring, is another excellent novelty shown in the collection, which also included Picture, a very large flesh-pink flower flushed with rose, Gold Crest of charming colouring, Mammoth, a glowing orange-scarlet, Royal Mauve, which bore four and five large, well-formed flowers on long stalks; Grenadier, a vivid scarlet, and R. F. Felton, a vigorous lavender Sweet Pea of splendid type.

An imposing collection of Sweet Peas was exhibited by Messrs. Dobbie and Co., who showed a large number of splendid varieties displaying excellent cultivation. Their chief sorts were Renown and Patience, of pink shades; Wizard, Royal Sovereign and Tangerine Improved, of orange colouring; Dignity, Mary Pickford, Hebe and Miss California, beautiful salmon-pink varieties; Jean Ireland, cream picotee edged with rose; Ivory Picture, Constance Hinton, a large white sort of fine form; Mermaid, beautiful shades of mauve; Royal Purple, Gleneagles, Mrs. Tom Jones, and Marchesa, a creamy-yellow, bearing four and five large well-disposed flowers on strong stalks.

Rock Gardens.

The rock gardens were better than ever. They were afforded the same site by the Embankment as usual, and by a fortuitous happening, or may be by each exhibitor striving to follow what had been learned from previous results, the whole, generally, "fitted in" admirably, and furnished one of the largest and best rock gardens to be seen anywhere. The majority of the exhibitors used grey, weathered lime-stone, and how carefully the stone was selected was shown in the fact that at least one exhibitor journeyed to Westmoreland to make a special selection of his material.

Mr. Clarence Elliott had the largest area of water, and his *motif* was to represent a mountain gorge, the floor of which was a stream and tarn. The water tumbled down at the back from the higher ground, and he cleverly arranged a bluff in front of the fall, giving a sense of greater depth. The stone crevices were carpeted with moss, and the planting was restrained yet effective, the principal subjects being Aquilegia glandulosa, Saxifraga Cotyledon, S. primuloides Elliott's variety, Pinguicula grandiflora, Primula sikkimensis, Trollius pumilus and Penstemon Davidisonii.

Mr. H. Brook, Whetstone, had greater depth and area, and he arranged a stream from back to front of his exhibit. Each feature of his design blended, and the whole was most natural in effect, the outcropping stones in grass being very realistic and appropriate to his scheme, which was not "cliffy" but just a representation of alpine scenery. Many alpine gems, such as Gentiana verna, Arnica montana, Iris lacustris, Aubrietia Mrs. Lloyd Edwards, Morisia hypogaea, Myosotis rupicola, Hutchinsia alpina and Phlox subulata, were disposed at appropriate spots, but the design relied on natural lines rather than on a garish effect from a surfeit of colours.

Mr. George Whitelegg, Chislehurst, whose exhibit was contiguous with the last, made a higher portion at the back, with water falling down rocks and feeding a small pool in the foreground. It was a rockery of great variety, including a moraine garden in which were growing Morisia hypogaea, Gentiana verna, Mazus pumilia, Oxalis adenophylla, Dianthus neglectus, D. alpinus, Mimulus radicans and Wahlenbergia serphyfolia pallida. At the extreme back the rock work was crowned with masses of Saxifrages of the choicer encrusted types, and other features were clumps of Primula pterocephala, Æthionema Warley Rose, Lithospermum Heavenly Blue, Phlox Vivid and Veronica Trehane, of beautiful sky-blue colour.

Messrs. Pulham and Son, London, represented a terraced mountain slope, with a series of pools filling the foreground, fed by water dripping from the roof of a cave (Fig. 200). The irregular, stone pathway leading to the summit of the higher part was quite natural, and here there were views of broad plateaus planted appropriately and generously with gems of the Alps. The exhibit was thrown into strong relief by the background of trees and shrubs skirting the roadway.

Capt. B. H. B. Symons-Jeune had a perfect setting of rock-work, such as is found naturally in the Cheddar gorge (Fig. 201). The delightful central rock-association would have formed an ideal setting around which to build the perfect rock garden, but the whole needed more space to do it justice. The stones were the largest employed by any exhibitor, and their disposition was done by a master hand, as were the planting and selection of the subjects with which it was furnished. At the foot of the stones was a pool in which some of the bright colours of the flowers were reflected. No attempt was made to "plaster" the stones with plants, but there were plenty of alpines arranged in the crevices, and one charming feature was a group of Saxifraga Tumbling Waters overhanging and showing prominently against the dark grey stone. Amongst rare plants we noticed Primula luteola, P. secundiflora, P. Forrestii, P. piedmontana, Campanula Allionii, flowering in profusion, Tulipa australis, Ramondias in variety, and, amongst a wealth of subjects sweeping down a little valley in the background, Meconopsis integrifolia and the uncommon Lilium bulbiferum.

Mr. R. Crewdson-Day contributed a small rockery built of excellent stone, with a mountain stream emptying into a pool as the chief feature.

Messrs. W. Cutbush and Son were the only exhibitors to use sandstone in these gardens. They made a bright and pleasing exhibit in which water, Ferns, small shrubs in flower, and a host of pretty alpines found a place.

Messrs. Hodgsons, Ltd., arranged their rock garden in the narrower part of the area devoted to these gardens. They made a pleasing bank of old water-worn stone with stream and pool, and planted it with a variety of alpines.

Mr. Gavin Jones used stone liberally, making a hummock in front, divided from a higher bank at the back by a circular pathway.

Alpine and Rock Plants.

Mr. Prichard arranged a collection of rock plants on tabling, where, among the many well-grown good things were noted the new Aubrietia Gloriosa, Linaria Cymbalaria alba compacta, Edraianthus serpyllifolius albo violacea, Malvastrun Munroanum and the tiny Galium olympicum. Mr. W. E. T. Ingwerson, East Grinstead, sent a number of choice rock plants, including a specially pleasing batch of Ramondias.

Messrs. J. Cheal and Sons, Ltd., Crawley, included in their collection of rock plants some good clumps of Lithospermum Heavenly Blue, Viola thuringiana, Antennaria dioica rosea and a number of choice dwarf Conifers.

Messrs. Waterer, Sons and Crisp staged a goodly collection of rock plants on tabling, obtaining fine effect by several masses of good things. Iris cristata, Viola pedata, Dianthus alpinus, Linum arboreum, Pentstemon Davidsonii and P. confertus coeruleus were examples of good culture. Mr. G. H. Dalrymple, Bartley, Southampton, showed his unique strain of pink forms of Primula pulverulenta, less effective perhaps than many might have been, owing to being shown raised on tabling and without background, but unequalled for variety and beautiful colour.

From Messrs. R. Tucker and Sons, Oxford, came one of the best of groups of rock plants arranged on tabling. It included a rich variety of subjects, and was equally effective in its grouping of colour and form. The alpine Aquilegia concolor and A. pyrenaica were noted, with Æthionema jucunda, Dianthus microlepis rumelicus, Linum capitatun and Meconopsis Prattii, as representative of the lesser-known plants. Messrs. Oliver and Hunter, Dumfries, gathered in small space one of the most interesting collections of Primula Meconopsis and similar plants. A grand form of P. Littoniana was included. Newer species were represented by P. Florindae and P. flexilipes, while Red Hugh was a striking piece of colour among the hybrids.

Messrs. Clarence Elliott, Ltd., Stevenage, Herts., arranged an effective table rock garden with good plants and good stone. Their Armeria Vindictive was popular here as in many other exhibits as one of the best of the Thrifts. Character to the arrangement was given by the use of Juniperus hiberica compressa, Retinospora obtusa nana and other Conifers.

Mr. Alfred Dawkins staged a collection of Gladioli, Anemones, Astilbes, Irises and Lilies. Messrs. Sheppards, Shawhurst Nursery, Hollywood, Birmingham, sent a little collection of rock plants and Irises.

Mr. Gavin Jones, Letchworth, Herts., made a charming display of choice rock plants, including among many other things some good plants of Campanula Allionii and the little-known Oxalis chrysantha. A varied collection of Violas was shown by Mr. W. Yandell, Castle Hill Nurseries, Maidenhead. The little tricolour, Jackanapes, attracted a good deal of attention; Mrs. Stevenson, yellow and mauve, was also much admired

Messrs. Carter Page and Co., London Wall, among a rich collection of smaller alpine plants, included Linum capitatum, Edraianthus serpyllifolius (which must have puzzled some with its label Cheiranthus serpyllifolius), Lithospermum Heavenly Blue, Phlox Douglasii and Pentstemon Davidsoni. The Guild of Blind Gardeners contributed a little exhibit of Irises and Astilbes.

Mr. Allgrove, Slough, showed Paeonia lobata, Primula pulverulenta, P. Mrs. R. V. Berkeley, Eremurus robustus magnificus, and such good forms of Paeonia officinalis as canescens plena, rosea and rubra, with pans of Sedums and other rock plants.

No more valuable exhibit to the student of recent introductions to our gardens was made than the group from Lady Aberconway and the Hon. H. D. McLaren (gr. Mr. F. C. Puddle). Pink forms of Primula pulverulenta and other good plants were included for their beauty, but essentially the group was a collection of the newer species of Primula and Meconopsis, rich in variety and interest, both horticulturally and botanically, and showing throughout excellent cultivation. Among the more striking Primulas were P. Mooreana, P. Paulinae, P. apochita, P. septemloba, P. darialica, P. Florindae and several species from Capt. Kingdon Ward, under number only. Meconopsis quintriplinervis, and the blue M. Baileyi were represented by fine plants.

Messrs. Jeans and Trowbridge, West Moors, Dorset, in a little group of rock plants, included an unusual number of lesser known subjects, though less care than usual was given to screening the pots in which they were growing; Helianthemum Chamaecistus is of good crimson colour; Saponaria splendens, Genista pilosa and Lavendula Stoechas were also noted

Messrs. W. H. Rogers and Son, Ltd., Red Lodge, Southampton, showed in an interesting collection of rock plants, Leptospermum Nichollii and other choice plants. Mr. H. Hemsley, in a collection of hardy plants, included Primula Lilodona, Lychnis, Viscaria alba and a number of the lesser known alpine subjects.

An excellent group of rock plants was staged by Messrs. Rogers, Pickering, full of interest and colour. Saxifraga Maréchal Joffre, rich crimson; and Mrs. E. Piper, pink, were good representatives of the mossy section. Cheiranthus Pamela Pershouse, Gentiana verna and Sedum pilosum were also well shown. Messrs. Hodgsons, Ltd., contributed useful rock plants. A collection of choice alpine plants was staged by Messrs. Maxwell and Beale, Broadstone. Mr. Scapelhorn, Beckenham, had many good hardy plants and included the now seldom seen Double White Rocket.

The alpine plants shown by Messrs. Bakers were especially rich in Primulas. Pam and Wanda are interesting as showing the influence of P. Juliae. Good plants were shown of P. secundiflora, P. chrysopa, P. Wardii, P. Bulleyana hybrids and many others. Mr. G. Reuthe, Keston, Kent, provided a number of interesting plants for the lover of out-of-the-way things—Lewisias, Orchids and Irises, with the new Donard Seedling Broom.

Mr. W. Wells, junior, Merstham, had an excellent collection of choice rock plants; Pentstemon Scouleri, Armeria alpina nana, Oxalis adenophylla, Phlox Douglasii and some charming forms of Viola gracilis were specially good. The Misses Hopkins showed a pretty collection of easily-grown rock plants.

Some lesser-known rock plants were well shown by Messrs. Bowell and Skarratt, Cheltenham. Incarvillea brevipes, Dodecatheons and Cypripediums, Viola pedata and good plants of Saxifraga longifolia were noted. Mr. H. Clarke, Greenway Nurseries, Taunton, sent a good collection of Violas.

Mr. F. G. Wood, Ashtead, staged a small group of rock plants full of interesting subjects, while Maples and dwarf Conifers adding character to the arrangement; Saxifraga caterhamensis and Primula Eileen Aroon were outstandingly good. The Central Garden Supplies, Kenton, Harrow, showed rock plants including Daphnes, Azaleas, Saxifrages and Saponarias.

Hardy Flowers.

One of the most artistic efforts was a very beautiful group of Delphiniums and Lupins from Messrs. Bakers, Wolverhampton. Tall spikes of Delphinium gave spires of tender blue. The Lupins were principally shades of pink, as of Pink Pearl and Delight, but not without a few yellows for colour relief, though the ample use of foliage and tasteful grouping provided an unrivalled setting. Messrs. J. Cheal and Sons staged a good collection of herbaceous plants dominated by the pinks of Lupins, Astilbes and Primula japonica with clumps of Kniphofias, contrasting colour being given by the blues of Iris sibirica. Messrs. Godfrey and Son, Exmouth, showed their specialities, double Nasturtium, Stock and a fine double form of Campanula persicifolia.

Messrs. R. H. Bath, Ltd., Wisbech, staged Pyrethrums and Paeonies. Pride of place was given to the beautiful new pink Pyrethrum, Eileen May Robinson, a foil to its colour being given by the use of a dark-foliaged Canna. The old Paeonia rosea superba was fine, while the Double White Narcissus represented the interest of the firm in the Daffodil and gave colour relief. Messrs. Wilson and Agar, Crown Nurseries, Reading, arranged a fine group of the bolder-growing herbaceous plants. The Lupins showed the wide range of colour now available in these fine border plants from the palest blue of Dresden china to the deep purple of Happiness. Kniphofia Sulphur Spire gave a touch of yellow. Irises, Thalictrums and Verbascums adding foliage and variety.

Mr. Amos Perry, Hardy Plant Farms, Enfield, made a display unique in its variety of hardy Ferns and rich in its collection of Irises. Perry's form of A. plumosum robustum was a magnificent plant, and in their genera, no plants are lovelier than Athyrium plumosum elegans, Scolopendrium crispum nobile, Polystichum angulare divivisilobum plumosum No. 7, of which splendid specimens were included. No other exhibit included the same range of Iris species and hybrids, notable being the hybrids of the American species Douglasiana, tenax and bracteata, of which many pretty forms were included. Garden Irises were also well represented, though less effectively grouped by such varieties as the tall white Mrs. Robert Emmett, the bronze-crimson Lord Lambourne, the fine pale blue Duke of York, and the rose-purple Mrs. Marion Cran. Primulas, Cypripediums, etc., gave variety to the group.

A blend of good old and fine new things appeared in the exhibit of Messrs. Bees, Liverpool. The interest in rare things was shown by the Roscoea cautlioides Beesii, Incarvillea Bees Pink, Primula chrysopa, etc., but good masses of Eremuri, Lupins, Lilium regale and Thalictrum dipterocarpum gave solidity and variety to the groups.

The lover of Lilies and Irises does not look in vain for good things in the exhibit of Messrs. R. Wallace and Co., Tunbridge Wells. Artistically grouped masses of what may perhaps be called commoner plants (although no second-rate subjects were included) made the group effective as an exhibit. There were, for example, showy masses of Liliums japonicum (Krameri), regale, Brownii, Willmottiae, a whole group of forms of L. Martagon, and clumps of L. Thunbergianum Orange Queen and L. umbellatum Golden Fleece, but special interest attached to a few varieties, the grassy-leaved, pink Lilium cernuum, Alexandrae, cordifolium, Farrer's variety of Duchartrei, etc. The rare, silver-edged L. longiflorum albo-marginatum was also well-shown. The collection of Irises was no less rich and varied. Mrs. Valerie West, deep velvety crimson; Midas, golden yellow and brown; Marsh Marigold, bright yellow and crimson; Susan Bliss, pink; Col. Candelot, chestnut-bronze; and White Knight being a few notable varieties.

Messrs. Artindale and Son, Sheffield, had some strikingly effective masses of Eremuri Elwesianus, E. robustus and E. himalaicus showing well over a carpet of Irises, Astilbes, Lupins and Pyrethrums. Although perhaps hardly natural to a May show a group of Delphiniums from Messrs. Blackmore and Langdon was very much admired. Mrs. Christie Miller, the best white; Sir Douglas Haig, deep violet; and Millicent Blackmore, mauve, represent the high-water mark of Delphinium raising.

Mr. G. R. Downer, Chichester, again showed his justly famous Lupins. It is in shades of pink that the strain is most noticeable; Entrancing, Goodwood, Pink Pearls, and Delight all glow with warm colour. The collection varies from the very palest pink of Renown to the deepest purple-rose of Fire Spray. Countess of March is a charming spike with flowers varying with age from white to lavender; many good blues and purples were included, though less advanced in quality than the rose shades.

An interesting group of Dutch and Spanish Irises and Anemones with a few Gladioli was shown by Messrs. de Goede Bros, Haarlem. Van Everdingen is one of the finest of the Dutch Irises, a beautiful yellow with paler standards; Heemskirk is self yellow; Teodore de Bock had the curious combination of yellow falls and blue standards; White Excelsior is a good white.

Messrs W. J. Godfrey and Son showed a fine mass of their semi-double, large-flowered form of Campanula persicifolia, called Pride of Exmouth. A good strain of double white Stock and double Tropaeolums were also included. The Irish Anemones were well shown by Messrs. Reamsbottom and Co., who have developed a strain of good size and finely varied colours.

Messrs. Hewitt, Solihull, specialising in Delphiniums, showed grand spikes of such varieties as Wembley, Monarch of Wales and Coquette, all characterised by breadth and size of spike and fine branching habit.

In a varied collection of good herbaceous plants from Messrs. B. Ladhams, the eye was caught by the pretty double Myosotis Orion, arranged with Heucheras, Thalictrums, Verbascums, and Pyrethrums. Pyrethrums, Lupins, and Poppies were shown well by Messrs. Rich and Co.

The Chalk Hills Nursery, Reading, contributed a group of herbaceous and rock plants, Giant Pansies and Mimulus with Anchusas and Isatis being especially noteworthy. Messrs. Storrie and Storrie, Glencarse, staged good strains of Polyanthuses and Auriculas, with some long-spurred Columbines specially rich in shades of pink and mauve. A glowing mass of colour from the beautiful single Paeonia lobata was provided by Mr. F. Gifford, Montagne Nurseries, Hornchurch, emphasising the value of specialising and showing what even one thing alone and well grown can do.

A group of hardy flowers dominated by Pyrethrums was shown by Mr. G. W. Miller, Wisbech. From The Maytham Gardens, Rolvenden, a much admired mass of Campanula Telham Beauty, with plants of Primula pulverulenta and P. sikkimensis; Her Majesty Queen Mary paid a second visit to these fine Campanulas. From the same gardens came an excellent strain of Lupins.

Some very good forms of Lupinus polyphyllus in bold masses made the dominating note in a fine display of herbaceous plants from Messrs. Maurice Prichard and Sons, Christchurch. Irises, Poppies and Pyrethrums were also examples of good nursery cultivation.

Messrs. Waterer, Sons and Crisp made a large and effective display of herbaceous plants. Good use was made of Lupins by arranging harmonies and contrasts of two colours as corner pieces; thus, Ruby King and Dresden China, palest blue and deepest purple; Saxe Blue and Cross Roads; Delight and Sunshine; The striking scarlet, fringed, Oriental Poppy, King George, the new Verbascum Cotswold Queen and Iris magnifica were other notable inclusions. Mr. W. H. Walters, Cheltenham, showed Podophyllum Leichtlinii, Paeonia arietina alba, and a number of other choice plants. Messrs. Harkness and Sons, Bedale, staged their strain of Regal Lupins with Trolliuses and Violas.

Formal Gardens.

These numbered about the same as usual, and collectively they made an attractive section of the show. The styles varied greatly, but many were rather bizarre in effect, due to the display of too many features in the limited space, and using plants forced in flower that would naturally carry on the display over several months.

Messrs. J. Cheal and Sons arranged a sunk garden with low retaining wall of stone, and above this a narrow border planted with a Lavender hedge, with, as a central feature, a Lily pool. At the extreme end was a dry stone wall with a background of Conifers, and a recess for a seat in the wall, on which were placed here and there, vases of Rhododendron and Spiraeas in flower. Around the water pool were planted Mignon Dahlias in beds of separate colours. Two herbaceous borders beyond the pool and borders of such shrubs as Azaleas, Cytisus, Japanese Maples, Kalmias and other subjects in flower in the foreground completed a very attractive exhibit.

Messrs. R. Wallace and Co. made a gorgeous display of colour with Rhododendrons in a design (Fig. 202) of which a central sunk garden was in the form of an ellipse, with a "mirror" pool reflecting the bright colours from the borders around. This pool was surrounded by a lawn with a paved walk around it, leading to the main feature, a Heather-thatched garden house. The latter was set in a generous border in which beautiful specimen Japanese Acers predominated furnishing richly-coloured foliage that was as beautiful as the bright tints of the Rhododendrons with which they were associated. Among the shrubs, a few of the choicer Lilies, such as L. regale, L. Brownii and L. Krameri, added further fine attractions, whilst the Irises in the sunk garden provided rich colours. Among new plants we noticed a fine form of Enkianthus campanulatus, Azalea macranthus maxima, Lilium umbellatum Golden Sceptre and Rhododendrons Armistice Day (scarlet) and Pink Beauty.

Messrs. Vernon Brothers, Kensington, had a trellised, enclosed garden, with flagged stoned paths and a pergola on either side, the latter furnished with finely-flowered rambler Roses and Clematis. In the centre of the scheme a flagged path had on either side a formal, narrow pool planted about with Irises, Reeds and Spiraeas. The dry stone wall immediately in front of the sunken portion was remarkably effective with Saxifrages of the granulata type profusely flowering on the top. There were also narrow borders of herbaceous flowers which added bright colours, and a water maze, the stream of water issuing from an old leaden pump head.

Messrs. Bakers, Wolverhampton, designed a garden "of rest" in which a pond, stone terrace and old-world stone chalet were the features. The house was especially effective, with house-Leeks on the roof and a Wistaria in bloom by the entrance. The garden was enclosed by a closely-clipped Yew hedge, and a generous portion was devoted to a lawn in which were beds of Japanese Maples and Primula Red Hugh, a variety of the P. pulverulenta type. Herbaceous flowers showed conspicuously in a narrow border against the dark green of the Yew hedge.

Messrs. Gazes arranged a "moat" garden—a garden with a rill surrounding a central, pebble-paved path that enclosed a lawn, and was skirted with a dry stone wall that retained a border of hardy flowers, the whole enclosed by a tall Yew hedge. It was an original design, and the most pretentious feature was a garden loggia at the end on a terrace approached by circular steps. In association with the loggia were banks of beautiful flowering and foliage shrubs, one on either side.

Messrs. W. Wood and Son had a formal "Italian" garden approached through an ornate pergola of wood, set in turf, with a broad crazy stone path. The main features were a sunk garden with a central wall pool and at the end a "Norfolk Reed-thatched" garden house with adjustable doors permitted of closing the sides to the prevailing winds. This house was on a raised terrace that was gay with Azaleas and Rhododendrons finely in bloom. The pool was fed from the mouth of a dolphin held by a boy, a beautiful garden ornament in lead. Beds of Irises were in good keeping with the water and formed a pleasant feature viewed from the garden house and terrace. In another large space this firm exhibited a second garden house of specially treated "Silver" Elm boards, also a vast assemblage of garden furniture ornaments, etc., such as seats in Teak, stone and whitewood, lead and stone statuary.

A "Garden of Reflection," arranged by Messrs. J. Carter and Co. (Fig. 203) was one of the most realistic designs of this nature we have seen attempted at an exhibition. It was simple, yet delightfully effective, and the wild island in the centre, with unkempt grass and clumps of Buttercups, was in perfect harmony with the scheme. The water flowed irregularly around the island, and in it were reflected the bright colours of gorgeous Rhododendrons that formed a shrub border with a back-ground of Conifers. The water issued from a cairn, tumbling down rocks, in the crevices of which Ferns and adpressed Conifers were skilfully disposed; outcrops of stones here and there near the source were very realistic.

Messrs. J. MacDonald and Sons made a formal garden entirely of grasses, the beds in the verdant lawn that was enclosed by a gravel path, being as attractive as those of showy flowers. A little water pool was arranged as the centrepiece, and the principal garden was enclosed by a border of the variegated Holcus mollis. Most of the beds were edged with Phleum aurea, and the four corner beds had the tall Miscanthus (Eulalia) saccharifera as a centre piece. The principal other grasses used were Eulalia zebrina, Elymus glauca, Glyceria spectabilis, Lagurus ovatus and Dactylis elegantissima.

Messrs. R. Neal and Sons, Wandsworth, arranged a purely formal garden, in which Rhododendrons, Azaleas and Irises furnished bright colours. It was enclosed by a Yew hedge and approached through an entrance with flagged path and stone pillars, the extreme end having a recess with stone seat overlooking a circular sunk garden in the centre of which was a circular pool, with grass and borders of Viola gracilis.

The Horsecombe Quarries and Stone Works, Bath, showed how effectively their designs in seats, bird-baths, sundials, vases and bowls may be made to represent old-world garden ornaments in a formal garden pleasingly planned and furnished with suitable flowering subjects.

Messrs. Wilson and Agar, Reading, had a fifteenth century "Wattle" garden, the whole of oval shape, being enclosed by a Wattle fence, and having as features turf seats enclosed by wattle and beds of old-fashioned flowers, also enclosed with wattle-work, such as some of the old-time garden pictures depict.

Mr. Ernest Dixon, Putney, had an old-world, flag-stoned garden in which the central feature was a sunken garden with a sun-dial. Around this was a small lawn, and next to this a border of hardy flowers, the extreme end having a stone seat with shrubs on either side.

Messrs. Reamsbottom and Co. designed a small garden, with sunk centre, and planted in with panels of St. Brigid Anemones in a variety of colours.

Tulips.

Despite the lateness of the season, several exhibitors were able to set up admirable collections of Darwin and May-flowering Tulips. Messrs. Barr and Sons had a very large collection, which also included in Old Times, James Wild, Boadicea and Andromaque, good examples of the feathered and flecked old English Tulips. Their other varieties included Red Prince, Dainty Maid, The Zebra and Semele. In association with these showy Tulips, Messrs. Barr and Sons displayed splendid vases of Dutch Irises in variety, Iris Xyphium in good variety, Iris Cajonis, I. Hoogeana, I. Luna and I. Dorothea. The decorative Gladiolus Colvillei, particularly The Bride and Appleblossom, and a good selection of long-spurred Aquilegias were also included in this interesting group.

Adjoining their Roses Messrs. Ernest Paul and Co. had a small collection of Tulips which included Panorama, Millett, Inglescombe Yellow, Scarlet Perfection and Mrs. Hoog.

Next to their fine exhibit of Sweet Peas Messrs. Dobbie and Co. had many vases of brilliant Tulips. The chief varieties were Mrs. Walter Ware, yellow; Orange Globe, Clara Butt, pink; Prince of Netherlands, Gorgeous, Striped Beauty, pink and white, and Zany of similar type but scarlet and gold colouring. All the flowers were well grown and considerable skill was displayed in the arrangement.

Fruit and Vegetable Committee.

Present:—Mr. A. H. Pearson (in the chair) Mr. W. H. Divers, Mr. W. F. Giles, Mr. A. Bullock, Mr. John Basham, Mr. W. J. Jefferies, Mr. J. Wilson, Mr. Fred G. Treseder, Mr. G. F. Tinley, Mr. W. Poupart, Mr. E. Beckett, Mr. A. Metcalf, Mr. A. Poupart, Mr. G. Prince, Mr. A. N. Rawes, Mr. P. D. Tuckett, Mr. A. Smith, Mr. A. Newby, Mr. W. Lobjoit, Mr. H. Markham, Mr. J. G. Weston, Mr. E. Harris, Mr. J. C. Allgrove, Mr. T. Pateman, Mr. J. Harrison, Mr. F. Jordan, and Mr. P. C. M. Veitch.

There was no exhibit of any kind for the deliberation of this committee.

FRUIT.

The only exhibit of pot fruit trees was displayed by Messrs. T. Rivers and Son, who made a large corner group of Cherries, Peaches, Nectarines, and Figs. The Cherries were especially finely fruited, and included the varieties Guigne d'Annonay, Early Rivers, Frogmore Bigarreau and Belle de St. Trone. The Nectarines included their fine new John Rivers variety, a very early sort, as early as Cardinal, and suitable for cultivation in a cold house. Other good Nectarines were Cardinal and Early Rivers, while the Peaches included well-fruited trees of Duke of York, Duchess of Cornwall, and Peregrin.

Messrs. Laxton Bros. showed, as usual, a collection of Strawberries, principally of their newer varieties. The pot plants were exceedingly good, and, we thought, much freer fruited than on previous occasions. They made a feature of the variety King George, which was raised by crossing Louis Gauthier and Royal Sovereign, and is said to ripen nearly a week earlier than the latter parent. Marshal Foch is a new main crop variety of fine flavour and bright colour, whilst Laxton's Prolific and Laxton's Robust are both mid-season varieties, the former with a pine flavour and very sweet; the other a large, conical or wedge-shaped fruit of rich crimson colour and of robust growth, Many baskets of excellent fruits were arranged in association with the pot plants, and collectively they made a very attractive exhibit.

Messrs. G. Bunyard and Co., Ltd., showed seventy-eight varieties of Apples and are to be congratulated on having been able to keep such a large number of varieties in good condition so late in the year. The specimens of Cox's Orange Pippin were of remarkable quality and others that were especially good are Cobham or Pope's Golden Ducat, Aromatic Russet, May Queen, Old Royal Russet, Smart's Prince Arthur, Farmers' Seedling, Adams's Pearmain, Claygate Pearmain, Allen's Everlasting, Reinette du Canada, Chaplin's Pippin, Wagener and Sturmer Pippin.

VEGETABLES.

An exhibit of vegetables, shown by the Hon. Vicary Gibbs, Aldenham House, Elstree (gr. Mr. E. Beckett), was one of the most meritorious of all the displays in the show, and attracted the keen interest of all who saw it. It was by far the finest group of its kind displayed, and excelled not only in quality of produce, but in general arrangement for effect, and many visitors were surprised that such an imposing colour scheme could be obtained from vegetables alone. The use of a very pale green stand with a trellis work at the back on which were shelves accommodating various kinds of vegetables, was in perfect harmony with the scheme, and stands of varying heights on which the vegetables were displayed in the body of the collection were a great advance on the old style of showing on plates. To enumerate the various dishes would be to give a list of practically all the vegetables the kitchen garden affords in and out of season at this time of the year; we may, however, instance as being exceptionally fine Broccoli Forerunner, Summer and First Crop; Peas, Duke of Albany and Exhibition; Sweet Corn, French Bean Longpod, and Golden Sunrise Turnip.

Baron Bruno Schröder (gr. Mr. E. J Henderson), also contributed a splendid collection of vegetables, young, fresh produce in excellent condition for the table. Of this very representative exhibit we may enumerate, as being especially good, Potatos King Edward VII, Up-to-Date, Dunnottar Castle; Cucumbers Every Day, Delicacy and Pride of the Market; Tomatos Magnum Bonum, Golden Queen, Every Day and Winter Beauty; Peas May Queen, V.C. and Early Giant; Turnip Early Milan; Asparagus, Marrows, Broad Beans, Lettuces, Radishes and Carrots.

Messrs. Sutton and Sons were the only trade exhibitors of vegetables, and their collection was of a high order of merit. The kinds represented almost all the vegetables obtainable in spring, now fewer than one hundred distinct dishes being included. The various subjects were blended for colour effect so that the group had great decorative merit. Specially good were Early Giant and Ideal Peas; Carrots Champion Horn and Inimitable Forcing; red and yellow Tomatos, Broad Beans, Cucumbers, Cauliflowers, Broccoli, Turnips, Beet and a remarkable collection of Radishes in various colours.

AWARDS OF THE COUNCIL.

CHALLENGE CUPS.

Sherwood Memorial Cup for the most meritorious group in the show; to Messrs. Sutton and Sons.

"*Daily Graphic*" Cup, for the best Rock Garden; to Messrs. Pulham and Son.

The *Cain Cup*, for the best exhibit by an amateur, to Sir Jeremiah Colman, Bart., (gr. Mr. J. Collier), Reigate, for Orchids.

The *Orchid Challenge Cup*, for the best exhibit of Orchids arranged by an amateur on a space not exceeding sixty square feet. Only those allowed to compete who employ not more than three assistants in the Orchid houses (including the head gardener); to H. T. Pitt, Esq. (gr. Mr. Thurgood), Stamford Hill.

Sutton Silver Cup, for the best amateur exhibit of vegetables; to Baron Bruno-Schröder (gr. Mr. E. J. Henderson), Dell Park, Egham.

SILVER CUPS.

To Messrs. Waterer, Sons and Crisp, for Rhododendrons and hardy plants; to Messrs. Hillier and Sons, for ornamental trees and shrubs: to the Orpington Nurseries Co., for Irises; to Sir Jeremiah Colman, Bt. (gr. Mr. J. Collier), for Orchids; to Messrs. Sanders, for Orchids; to Messrs. J. Cowan and Co., for Orchids; to Mr. B. H. Symons-Jeune, for a rock garden; to Mr. G. G. Whitelegg, for a rock garden; to Messrs. R. Bolton and Son, for Sweet Peas; to Messrs. Dobbie and Co., for Sweet Peas; to Messrs. Allwood Bros., for Carnations; to Messrs. C. Engelmann Ltd., for Carnations; to Mr. E. J. Hicks, for Roses; to Messrs. Bakers, Ltd., for a formal garden; to Messrs. Vernon, Bros., for a formal garden; to Messrs. M. Prichard and Son, for alpine plants; to Messrs. L. R. Russell, Ltd., for stove plants; to Mr. H. J. Jones, for Hydrangeas; to Messrs. Blackmore and Langdon, for Begonias; to Messrs. G. Jackman and Son, for Clematis; to Messrs. J. Carter and Co., for greenhouse and other flowering plants; to Mr. Amos Perry, for hardy plants.

MEDALS.

Gold Medal.—To the Hon. Vicary Gibbs (gr. Mr. E. Beckett), for vegetables; to Messrs. Bunyard and Co., for Irises; to Messrs.

Charlesworth and Co., for Orchids; to Messrs. J. and A. McBean, for Orchids; to Messrs. Pulham and Sons, for a rock garden; to Messrs. B. R. Cant and Sons, for Roses; to Messrs. R. Wallace and Co., for a formal garden; to Messrs. R. Wallace and Co., for shrubs and bulbous plants; to Messrs. Sutton and Sons, for greenhouse plants.

Silver-gilt Hogg Medal.—To Messrs. G. Bunyard and Co., Ltd., for fruits; to Messrs. Laxton-Bros., for Strawberries.

Silver-gilt Lindley Medal.—To Lady Aberconway and the Hon. H. D. McLaren (gr. Mr. F. C. Puddle), for Japanese and Tibetan Primulas.

Silver-gilt Grenfell Medal.—To Miss W. M. Brooke, for paintings and drawings of flowers and insects.

Silver-gilt Knightian Medal.—To Baron Bruno Schröder (gr. Mr. E. J. Henderson), for vegetables.

Silver-gilt Floral Medal.—To Messrs. R. and G. Cuthbert, for Azaleas; to Messrs. M. Koster and Sons, for Rhododendrons; to Mr. R. C. Notcutt, for Lilacs and other flowering shrubs; to Mr. H. T. Pitt (gr. Mr. Thurgood), for Orchids; to Messrs. Armstrong and Brown, for Orchids; to Messrs. Stuart Low and Co., for Orchids; to Mr. Clarence Elliott, for a rock garden; to Mr. H. Brook, for a rock garden; to Messrs. Hodsons, Ltd., for a rock garden; to Messrs. Chaplin Bros., for Roses; to Messrs. J. Carter and Co., for a landscape garden; to Messrs. J. Cheal and Sons, for a formal garden; to Messrs. W. H. Gaze and Sons, for a formal garden; to Messrs. Oliver and Hunter, for alpine plants; to Messrs. R. Tucker and Son, for alpine plants; to Messrs. W. Cutbush and Son, for Roses and Hydrangeas; to Messrs. M. Prichard and Sons, for herbaceous plants; to Messrs. Bees, Ltd., for herbaceous and alpine plants; to Mr. Amos Perry, for hardy Ferns.

Silver-gilt Banksian Medal.—To Messrs. Barr and Sons, for bulbous and other flowering plants; to Messrs. de Goed Bros., for Irises and Anemones; to Mr. G. Reuthe, for Rhododendrons and other shrubs; to The Donard Nursery Co., for interesting and rare shrubs; to Messrs. Fromow and Sons, for Japanese Maples; to Messrs. L. R. Russell, Ltd., for trees and shrubs; to Messrs. Hosea Waterer, for golden Yews and other shrubs; to Messrs. W. Cutbush and Son, for clipped trees in tubs; to Messrs. A. Charlton and Sons, for shrubs; to Messrs. R. and G. Cuthbert, for Azaleas and other shrubs; to Messrs. Black and Flory, for Orchids; to Messrs. J. Cypher and Sons, for Orchids; to the Executors of the late Sir W. E. Cain (gr. Mr. C. Moore), for Carnations; to Messrs. Dobbie and Co., for Tulips; to Messrs. A. J. and C. Allen for Roses; to Mr. G. Prince, for Roses; to Messrs. R. Neal and Sons, for a formal garden; to Messrs. W. Wood, and Son, Ltd., for a formal garden; to Mr. Clarence Elliott, for alpine plants and dwarf shrubs; to Messrs. Bakers, Ltd., for alpine plants; to Messrs. Waterer, Sons and Crisp, for alpine plants; to Messrs. Stuart Low and Co., for greenhouse plants; to Messrs. W. Artindale and Son, for hardy plants; to Messrs. Carter Page and Co., for Dahlias; to Mr. G. R. Downer, for Lupins.

Silver Flora Medal.—To Messrs. Hosea Waterer, for Azaleas; to the Hollambys' Nurseries, for ornamental trees and shrubs; to Messrs. J. Cheal and Sons, for ornamental shrubs; to Messrs. Mansell and Hatcher, for Orchids; to Mr. H. G. Longford, for Tulips and Pansies; to Mr. E. Dixon, for a formal garden; to Mr. James MacDonald, for a grass garden; to Messrs. Maxwell and Beale, for alpine plants; to Messrs. Bowell and Skarratt, for alpine plants; to Mr. F. G. Wood, for alpine plants; to Messrs. Storrie and Storrie, for Aquilegias, Polyanthuses and other hardy flowers; to Messrs. Blackmore and Langdon, for Delphiniums; to Messrs. Toogood and Sons, for flowering plants; to Messrs. R. H. Bath, Ltd., for hardy flowers; to Messrs. Bakers, for hardy plants; to Mr. W. H. Walters, for miscellaneous flowering plants; to Messrs. Waterer, Sons and Crisp, for hardy plants.

Silver Grenfell Medal.—To Mrs. N. Blacklock for water-colour paintings of flowers; to Mrs. E. Fisher, for water-colour paintings of gardens; to Miss E. Savory, for flower pictures; and to Miss J. N. Williams, for paintings of flowers and gardens.

Silver Hogg Medal.—To Messrs. Rivers and Son, for fruit trees in pots.

Silver Banksian Medal.—To Mr. G. G. Whitelegg, for Irises; to Mr. T. Lewis, for Rhododendrons; to Messrs. R. Green, Ltd., for Bay trees; to Mr. J. Klinkert, for topiary work; to Messrs. Sutton Bros., for Orchids; to Mr. James Douglas, for border Carnations; to Messrs. F. Cant and Co., for Roses; to Mr. W. Ingwerson, for alpine and dwarf shrubs; to Messrs. Carter Page and Co., for alpine plants; to Mr. H. B. Brandt, for Caladiums; to Messrs. W. J. Godfrey and Son, for Pelargoniums and hardy flowers; to Mr. A. Dawkins, for miscellaneous flowering plants; to Messrs. Watkins and Simpson, for Schizanthuses; to the Studley Horticultural College, for Hydrangeas; to Mr. G. H. Dalrymple, for Primulas; to Mr. James Douglas, for Auriculas; to Messrs. Wilson Agar, for herbaceous plants; to Messrs. Hewitt and Co., for Delphiniums; to the Yokohama Nursery Co., for Japanese dwarf trees.

Knightian Medal.—To the Guild of Blind Gardeners, for vegetables.

Flora Medal.—To the Hollambys' Nurseries, for Conifers; to Mr. H. Dixon, for Orchids; to Mr. Gavin Jones, for a rock garden; to Messrs. Barr and Sons, for Tulips; to Mr. R. V. Roger, for alpine and dwarf shrubs; to Messrs. W. H. Rogers and Son, for alpines; to Messrs. J. Cheal and Sons, for alpines, to Mr. H. Hemsley, for alpine plants; to Messrs. Jeans and Trowbridge, for alpine plants; to Mr. Gavin Jones, for alpine plants; to Mr G. Reuthe, for alpine plants; to Mr. W. Wells, junr., for alpine plants; to Messrs. J. Peed and Son, for stove and greenhouse plants; to Mr. S. Smith, for Cacti and succulent plants; to Messrs. Jarman and Co., for Pelargoniums and Centaureas; to Mr. G. A. Miller, for hardy plants; to Mr. E. Gifford, for Paeonies; to Mr. J. C. Allgrove, for hardy and alpine plants and shrubs; to Mr. H. N. Ellison, for Ferns.

Banksian Medal.—To Messrs. M. Koster and Son, for Azaleas; to Messrs. R. Gill and Son, for Rhododendrons; to Messrs. S. Low and Co., for Carnations; to Messrs. E. Paul and Co., for Tulips; to Messrs. E. Paul and Co., for Roses; to Mr. J. H. Pemberton, for Roses; to the Central Garden Supplies, Ltd., for alpine plants; to Messrs. Hodsons, Ltd., for alpine plants and dwarf shrubs; to the Misses Hopkins, for alpine plants; to Messrs. E. Webb and Sons, for greenhouse flowering plants; Mr. R. J. Case, for Pelargoniums and Salvias; to the Chalk Hill Nurseries, for hardy plants; to Messrs. B. Ladhams, for hardy plants; to Messrs. Reamsbottom and Co., for Anemones; and to Mr. W. Yandell, for Violas.

⁂ *Our remarks on the trees and shrubs, educational exhibits and horticultural sundries will be published in our next issue.*

TRADE NOTE.

Readers requiring information and advice respecting Patents, Trade Marks or Designs, should apply to Messrs. Rayner and Co., Patent Agents, 5, Chancery Lane, London, who will give free advice to readers mentioning this paper.

CATALOGUES RECEIVED.

Daniels Bros., Ltd., Norwich.—Summer bedding plants.
Charles Turner, The Royal Nurseries, Slough.—Dahlias.
W. W. Johnson and Son, Ltd., Boston, Lincolnshire.—Flower seeds (wholesale).
Burtt and Son, Gloucester.—Bees and appliances.

Obituary.

John T. Bennett Poë, M.A., V.M.H.—Yet another of the great gardeners has passed away. Perhaps only a few of his intimate friends can realize how many links with the past, how great a store of knowledge and what a refined and unerring power of judgment have gone with John Bennett Poë. As the late George Paul said of him: "Mr. Poë never shows more than one plant at a time before the Floral Committee, but that one never fails to receive an award." From the days when he gardened at his father's home Riverston, Nenagh, in the County Tipperary, he collected and raised plants that had some quality that made them better than other folks. "Riverston Variety" was a hall mark of distinction. Later he grew his plants at Cheshunt. He always disclaimed the name of garden, preferring that of *refugium plantarum* for the plot of ground in which was an extraordinary collection of good plants and each variety the best of its kind. He lived in London, and this plot of ground supplied him with fruits and flowers, and the R.H.S. Floral Committee's table with novelties. A superb Cypripedium seedling or a Nerine, Auricula, Cistus or Water Lily would make its debût from there. Until the last three years he was a familiar figure at the R.H.S. shows, but latterly, after a severe attack of bronchial pneumonia, he was such an invalid that he seldom left his room. Formerly a member of the Council of the R.H.S., he was also a Trustee of the Wisley Gardens, a Vice-chairman of the Narcissus, Scientific, and Floral Committees, a member of the Library Committee, and a Veitch Memorial Trustee. When Daffodils were growing in beauty and favour, and Mr. Engleheart was raising epoch-making seedlings, Mr. Bennett Pöe, the late Mr. Kingsmith and a few others formed a syndicate to purchase and distribute some of the best seedlings, White Queen, Noble and other still important varieties were some of their selections. He had a fine collection of gold coins of the Roman Emperors and his home was full of good pictures, china, bronzes and other art treasures, all of which showed the taste and knowledge of this many-sided man. His charm of manner and wide knowledge of so many things worth knowing made him a delightful companion. It is a pity, indeed, that his memories are not embodied in what would be one of the most interesting of books.

Isaac McDougall.—It is with great regret that we have to record the death of Mr. Isaac McDougall, which took place in London recently. Mr. McDougall was formerly chairman of Messrs. McDougall and Robertson, Ltd., Manchester, and also of Messrs. McDougall and Yalding, Ltd., and subsequently became vice-chairman of Messrs. Cooper, McDougall and Robertson, Ltd., upon the amalgamation of these companies with Messrs. William Cooper and Nephews, Ltd., of Berkhampsted. Throughout his life, Mr. McDougall was closely associated with horticultural interests, his companies being manufacturers of a wide range of insecticide sprays, etc., used by fruit-growers, gardeners and horticulturists, both in this country and abroad. After leaving school, he went to the Swanley Horticultural College, and was afterwards pupil at the farm of Mr. (now Sir Walter) Berry at Faversham. When only nineteen years of age he started farming on his own account at Red Hill, Wateringbury, but after a few years joined his father in business at Manchester, and subsequently became chairman and managing director of Messrs. McDougall Brothers, Ltd., of that city. A keen and capable business man, he combined a genial and generous nature with an unbounded capacity for hard work and successful organisation. He was a model employer and enjoyed, not only the respect and esteem, but in an unusual degree, the personal affection of his staff and employees. His death at the comparatively early age of fifty-three is to be deeply regretted.

Communications Received.—J. W. S.—K. and S.—C. P. and C.—R. W. B.—W. J. McW.—F. J. S.—H. F. H. E.—D. M.—E. G. H.—

THE Gardeners' Chronicle

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SUPPLEMENTARY ILLUSTRATION.

Mossy Saxifrages in the Rock-garden, Kew.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 58·2.

ACTUAL TEMPERATURE—
The Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, June 2, 10 a.m. Bar. 29·7 Temp. 52°. Weather, Raining.

Campanula Telham Beauty and its Genetical History.

THE large form of Campanula persicifolia known as Telham Beauty which was exhibited some ten years ago by Messrs. Barr and Sons, and received subsequently an Award of Merit, is, as is well-known, a good showy garden plant with large, open, shallow, cup-shaped flowers two-and-a-half inches across and of a lilac-mauve colour. From a scientific point of view Telham Beauty is yet more interesting, and the reasons for its scientific interest are ably expounded by Mr. A. E. Gardner, of the John Innes Horticultural Institute in the *Journal of Genetics* for April 1926. In the first place the appearance some years ago at Telham Court was in point of fact not the first time this variety has arisen, for, under the name C. persicifolia var. maxima, it is figured in the *Botanical Magazine* for 1705 (tab. 397). The plant which stood for this old portrait is said to have come from South Carolina in 1791 and to have been of garden origin. This plant with its descendants had long since passed away, but obligingly enough Nature reproduced it once again. The loss of Telham Beauty is the more surprising in that unlike the parent species C. persicifolia, which is self-sterile, it is self-fertile. So much by the way of introduction : it now remains to state why this plant is of real interest to students of genetics. In order that the statement may be intelligible, it must be premised that the cells of plants contain in that dense part of the protoplasm known as the nucleus, certain rod or other shaped bodies which, as there is good reason to believe, serve as the carriers of the hereditary characters of the plant of which they are a part. These deeply staining recognisable components of a nucleus are known as the chromosomes. They carry or may be supposed to carry material particles of unknown nature. These particles are designated by the non-committal name of factors and there is ground for the belief that each factor has a definite status in one of the several chromosomes contained in a nucleus. Each factor, moreover, is responsible for the evocation of a plant character : for example, the character of flower colour or that of leaf shape, or that of stature, perennialness, etc. Strung along a chromosome like beads on a necklace or balls in a billiard box are the factors, some in one of the chromosomes and some in another. It should also be stated that each species of plant is characterised by a definite number of chromosomes. The number may be small—six or fewer, or it may be large—forty-eight or more. Closely allied species have, in some cases, an identical number of chromosomes in each of their cells, but in other cases allied species have different and sometimes very different numbers. In not a few plants the numbers of chromosomes in different species of a genus may be multiples ; for example, nine, eighteen, and so on. When fertilisation takes place the chromosomes contributed by the male parent and carried in the pollen grain meet those contributed by the female parent and contained in the egg cell. Thus the fertilized egg cell possesses equal contingents of chromosomes of male and female prevenance. Just before the formation of pollen grains and of egg cells the paternal and maternal chromosomes which in previous nucleae divisions have remained distinct, unite in pairs and hence in the cell in which this union occurs, the number of chromosomes appear to be reduced by one half ; an appearance which is, however, due to the cohesion of a male with a female chromosome so closely that the two look like one. In the cell-division as a result of which there are produced cells which give rise to the reproductive cells or gametes one of each of the paired chromosomes becomes part of the nuclear of one daughter cell and the other becomes part of the other. Thus, if in previous cell divisions there were six chromosomes, three of paternal and three of maternal origin, this reduction division, as it is called, will result in the formation of two daughter cells each with three chromosomes only. And, moreover, the three will apparently be any three, one say of paternal and two of maternal origin or *vice versa*. Hence the reproductive cells *will not be all alike* with respect to the chromosomes contained in their nuclei and hence also they may be not all alike with respect to the factors which they carry. Now in the case of Campanula persicifolia, microscopical examination shows that the dividing nucleus—of any cell of root or leaf, etc.—has sixteen chromosomes. Telham Beauty on the other hand has in each similar cell nucleus thirty-two—exactly double the number of C. persicifolia. The larger habit of plant and flower would thus seem to be directly connected with the doubling of the number of chromosomes. The numbers sixteen and thirty-two apply to the ordinary cells of the plant body, the sexual cells as a result of the reduction division, have respectively eight and sixteen chromosomes. Evidently a very interesting state of affairs will arise if and when these differently endowed plants are crossed with one another. In point of fact the interest is two-fold. First because only when Telham Beauty is the mother does the cross succeed. Secondly, because this cross of a plant with sixteen and another with eight chromosomes in the reproductive cells results in descendants, some of which may have different chromosome numbers, it may be thirty-two or it may be twenty-four, and it is found on the whole that the plants with the largest number of chromosomes are nearest Telham Beauty in robust vegetative growth and stoutness of rosette leaves. Finally there appears to be reason to believe that the occasional origin of Telham Beauty from ordinary C. persicifolia is due to the fact that now and then a plant of the latter, under circumstances which escape our knowledge, arises with double the normal number of chromosomes, viz. thirty-two instead of sixteen. If two such plants were to be mated the reproductive cells each having the reduced number of chromosomes (16) would in fusing in pairs give rise to offspring with 16 + 16 = 32 chromosomes and that offspring would appear as Telham Beauty. It is a slender plant on which to hang so heavy a story ; but readers who are unfamiliar with the wonderful discoveries which are now being made with respect to heredity by the microscopic examination of the nuclei of plants and animals, though they may find this account not altogether easy to follow, will, we hope, nevertheless, have the patience to puzzle it out, for it looks as though these discoveries are destined to throw light on what Darwin once called the mystery of mysteries—namely the origin of species.

National Sweet Pea Society.—We are asked by the Secretary of the National Sweet Pea Society to state that, in order to conform with the arrangements of the Cheltenham Floral Fête, the annual show of the National Sweet Pea Society at the Montpellier Gardens, Cheltenham Spa, on June 30 and July 1 next, will remain open until 9 p.m. on the first day and until 7 p.m. on the second day, instead of closing at the times stated in the Society's schedules and members tickets.

Royal Horticultural Society's Amateur Show.—Mr. A. Simmonds, Assistant Secretary of the Royal Horticultural Society, states: "From correspondence received it would appear that many are under the impression that the R.H.S. Amateur Show, which is to be held at Vincent Square on June 22, is open only to Fellows of the Society. May I ask you to be so good as to make it known that all amateurs are cordially invited to exhibit, and that there are no entrance fees." Schedules may be obtained from the Secretary, R.H.S., Vincent Square, Westminster, by whom entries must be received not later than by the first post on Tuesday, June 15.

Gardeners' Royal Benevolent Institution.—The Festival Dinner (81st Anniversary) in aid of the funds of The Gardeners' Royal Benevolent Institution will take place at Grocers' Hall, City, on Thursday, June 10, under the Presidency of His Grace the Duke of Portland, K.G., G.C.V.O. Contributions to be placed on the chairman's subscription list are earnestly solicited and will be gratefully received and acknowledged by the Secretary, Mr. George J. Ingram, at the offices, 92, Victoria Street, S.W.

Pyrford Court Gardens.—The beautiful gardens at Pyrford Court, near Woking, Surrey, will be open to the public, by kind permission of Viscount and Viscountess Elveden, every afternoon from 2 p.m. to 7 p.m. during the week commencing Monday, June 7, until Sunday, June 13. The charge for admittance is sixpence, and tickets may be obtained from the gardener, Mr. W. Auton, before the dates. The proceeds will be divided between the Gardeners' Royal Benevolent Institution and the Royal Gardeners' Orphan Fund. Seasonal gardens are a feature of Pyford Park, and the Rose garden and the Iris garden are particularly attractive just now.

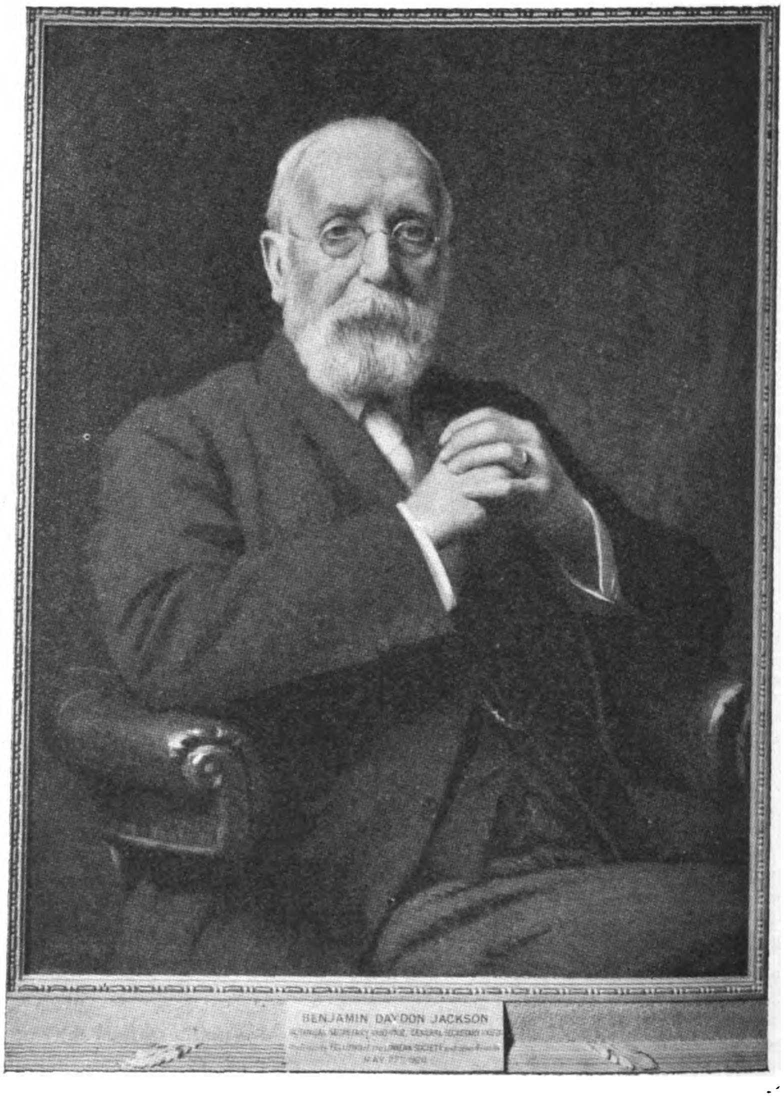
Improved Railway Facilities for East Anglia.—In order to cope more speedily with the increasing supplies of vegetables from such districts as South Lincolnshire, and Tomatos, Cucumbers and other glasshouse crops from the Lea Valley, the London and North Eastern Railway is making arrangements for additional accommodation, in the form of sidings and goods yards, at various places in the Eastern Home Counties. It is expected that the increased acreage devoted to Beets in East Anglia will also require greater railway facilities.

Professional Gardeners' Club.—The annual dinner of the newly instituted Gardeners' Club was held at the Clarendon Restaurant, Hammersmith, on Tuesday, May 25, the first evening of the Chelsea Show, when there was a good attendance of the members. Following the dinner the first annual meeting was held, when the rules were revised, and the future proceedings of the club arranged. It was decided that in future the business meeting will be held one hour before the annual dinner, and a social evening afterwards. Several new members were elected. The objects of the Club are to provide a means of social and professional intercourse between the leading gardeners in private, botanical and public gardens. The officials are:—Chairman, Mr. F. C. Puddle, Bodnant Gardens, North Wales; Treasurer, Mr. A. Osborn, Royal Botanic Gardens, Kew; Secretary, Mr. A. Bedford, Exbury House Gardens, Southampton; Committee, Messrs. H. G. Alexander, Westonbirt; A. Bullock, Copped Hall; T. Hay, Hyde Park; F. Jordan, Ford Manor; A. W. Metcalfe, Luton Hoo; T. Pateman, Brocket Hall; and C. P. Raffill, Kew.

A Sweet Pea Naming Competition.—At the annual show of the National Sweet Pea Society, which is to be held at the Montpellier Gardens, Cheltenham Spa, on the last day of this month and on July 1, in association with the Cheltenham Floral Fete, there will be a novel competition in aid of the Society's funds. Thirty distinct varieties, selected from the N.S.P.S. Classification List, will be exhibited under numbers and visitors will be invited to try their skill in naming them correctly. Entry cards will be on sale at sixpence each and cash prizes will be offered for the correct or nearly correct lists.

A Neglected Detail in Cucumber Cultivation.—Whilst gardeners take the precaution to remove the old soil in which Cucumbers have grown and add fresh compost for a new batch of plants, they are not generally aware of the importance of sterilising the base on which the beds are formed. That this is necessary is proved by experiments conducted at the Experimental Research Station, Turner's Hill, Cheshunt, in 1922-25. It is not generally understood how the contamination of the base arises, but it is supposed that deleterious substances are washed down from the beds and accumulate there. When the roots of the Cucumber plant come in contact with this source of contamination their health and fruiting capacity are seriously impaired. The best means of sterilisation is steam, and it is advised to delay the steaming for as long as possible, so that when the new soil is placed in position, it will become warmed through. It was found that the replacement of a contaminated base even by new soil of a poor gravelly nature resulted in an immediate improvement in the crop.

Presentation of Dr. B. Daydon Jackson's Portrait.—The anniversary meeting of the Linnean Society of London, on May 27, concluded with an interesting ceremony, when Sir David Prain, C.M.G., C.I.E., Treas. R.S., Past-Pres. Linn. Soc., unveiled and presented to the Society, on behalf of the subscribers, a portrait, reproduced below, of Dr. B. Daydon Jackson, R.N.O., Hon. Ph.D. (Upsal.), by the well-known painter, Mr. Ernest Moore. In a happy speech, Sir David referred to Dr. Daydon Jackson's long connection with the Society, as a Fellow from 1868, as Botanical Secretary from 1880-1902, and as General Secretary from 1902 until his appointment that day to a newly-created post as Curator of the Linnean collections. Sir David recalled how, many years since, he was in conversation with the French botanist, Cornu, during a walk in Paris. The question of public statues arose, and Cornu pronounced his opinion that in some instances the English erected statues to the wrong people; and that, among others, he considered that the author of the *Index Kewensis* deserved a statue. After commenting upon the benefits Dr. Jackson had conferred on Botanical science by such works as the *Index Kewensis*, his *Glossary of Botanic Terms*, and his contributions to Linnean studies, Sir David then unveiled the portrait which was formally received by Dr. A. B. Rendle, F.R.S., President of the Society, who, in his presidential address, had already pronounced an eulogy upon Dr. Jackson's long and useful career. Dr. D. H. Scott, F.R.S., Past-Pres. Linn. Soc., also spoke with appreciation of Dr. Jackson's long connection with the Society, his ever-ready helpfulness to Fellows and others seeking information, and to the excellence of the portrait as a character-study. He mentioned also that it was not inappropriate to recall that the 27th May was sacred to the memory of the Venerable Bede, as Dr. Jackson was now in his eighty-first year. Dr. Jackson, in acknowledgment of the honour done to him by the presentation and appointment as Curator, mentioned that of the many hundreds of general meetings of the Society that had been held since his election as Botanical Secretary in 1880, he had only failed to be present at two. He recalled that he had been an officer of the Society for almost exactly one-third of the one hundred and thirty-eight years of its existence; and it was with emotion that as a secretary he wished the Fellows "Farewell." It may be added that the portrait was accepted for this year's Royal Academy Exhibition, but was crowded out.



PORTRAIT OF DR. B. D. JACKSON PRESENTED TO THE LINNEAN SOCIETY BY THE FELLOWS AND HIS FRIENDS.

Visitors to Kew in 1925.—During past year there were 1,671,849 visitors to the Royal Botanic Gardens, Kew, an increase of 135,985 on the attendance of 1924. The record month for last year was June, when there were 340,569 visitors, while the lowest monthly attendance for the year was 17,332 in December. On Whit-Monday of last year 67,477 visitors passed through the turnstiles, making a record attendance for that holiday, though the actual record daily attendance at Kew, since a charge was made for admission, is the 90,688 of Easter Monday, 1924. The record lowest daily attendance is 6 on December 1, 1919, closely followed by 7 on January 15, 1918. Last year the lowest daily attendance was 14, on December 4

Kew Guild Journal.—The difficulties in editing an annual such as the *Kew Guild Journal* are much greater than the majority of readers realise. Once again, an editor has had to offer explanations of lateness in publication, but to all Old Kewites the *Journal* is always welcome, whenever it arrives. It is inevitable, though saddening, that in such an Association as the Kew Guild the "In Memoriam" pages should increase and, we may add, seeing that many take up posts in the tropics, include obituaries of comparatively young men. West Africa, particularly Nigeria, has taken a heavy toll of Kew men, and, with the death of Mr. Walter Haydon, passes the last of the pioneers of cultivation in the West Coast. It is less than forty years since the first—Woodruff and Harold Bartlett—left Kew for the Niger; but their hour soon came, and was followed all too quickly by that of other good men. The *Journal* contains an autobiography of the late Mr. William Watson, by the present Curator, who knew "W.," as Mr. Watson was affectionately known to many Kewites, better than anyone else. Mr. Bean gives an admirable account of Mr. Watson's life and work at Kew, though he is not quite correct in the penultimate paragraph, where he says Mr. Watson, after retiring from Kew, was engaged with the preparation of the Exhibition grounds at Wembley. From his retirement until his health failed, Mr. Watson was Secretary to the Horticultural Committee of the B.E.E., which dealt solely with prospective horticultural exhibitors. The grounds at Wembley were then under the charge of Mr. A. C. Bartlett, another old Kewite. Other notes and articles of great interest in the *Journal* include: "Rubber Planting in Nigeria," "Twenty-seven Years in India," "Railway Developments of Central and South Central Africa," and "Agricultural and Forestry Training in Kumasi." There are the customary Reports and Notices, with the list of members of the Guild. Altogether, it is a very interesting number, which continues the high standard of the Guild's publications, and is fully deserving the appreciation of all Old Kewites.

Mr. W. Cuthbertson.—We learn from the American horticultural press that Mr. Wm. Cuthbertson, whose interesting notes under the title of "A Traveller's Observations" are concluded on page 402, arrived with Mrs. Cuthbertson in San Francisco on the morning of May 12, by the steamer "Manoa," from Honolulu. It was announced that Mr. Cuthbertson would be present and speak at the meeting of the Pacific States Seedsmen's Association at Del Monte on May 19 and 20.

Primula Juliae Hybrids.—At a recent meeting of the French Horticultural Society, Messrs. Vilmorin-Andrieux et Cie., exhibited a series of hybrids made from crosses between Primula Juliae and P. acaulis var. calycanthema in 1920. The first generation showed considerable uniformity, and were more or less intermediate with respect to foliage, but bore rose-lilac flowers with calyx transformed into corolla, like the male parent. In the second generation, segregation was observable, and forms more resembling one or the other parent were obtained; some of them extremely floriferous. In the third generation, plants appeared with a very unexpected "Elatior" habit, that is, with an upright, umbel-like inflorescence, like that of P. elatior. Other crosses made by Messrs. Vilmorin include P. elatior × P. Juliae, and it is of interest to record that of eleven plants of the first generation, nine were yellow, like the P. elatior parent, and two magenta, after the style of P. Juliae; a result not dissimilar from that obtained by Dr. Rosenheim and exhibited before the Royal Horticultural Society.

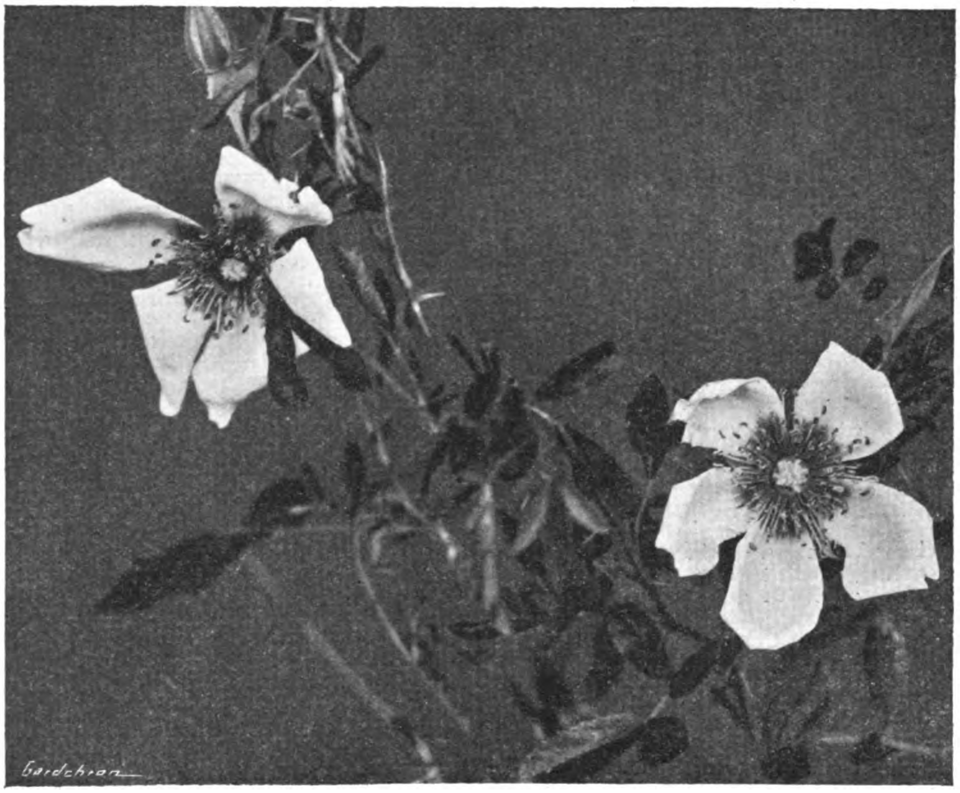


FIG. 204.—ROSA HARDII.

American Orchid Society's Show.—According to the American horticultural press the exhibition of the American Orchid Society, held in the Memorial Hall, Philadelphia, on May 7 to 9, was a brilliant success. The Society is five years old, and the *Florists' Exchange* claims that there is no example on record of such rapid growth in the horticultural world as that evidenced by this year's Orchid exhibition, which was open entirely free to the public. One exhibitor, Mr. A. C. Burrage, of Boston, displayed no fewer than 7,000 plants, and another very large contribution was made by Mr. F. Eugene Dixon, of Philadelphia. The total number of visitors is said to have been 106,448; on the Sunday the attendance was 60,360.

Appointments for the Ensuing Week.—Monday, June 7: Romsey and District Gardeners' Association's outing. Tuesday, June 8: Jersey Gardeners' Society's meeting. Thursday, June 10: Annual Festival Dinner of the Gardeners' Royal Benevolent Institution. Friday, June 11: Royal Horticultural Society of Ireland meeting.

"Gardeners' Chronicle" Seventy-five Years Ago.—Preserving Fruit.—Amongst the many plans for preserving fruit which have been described, and which, more or less, depend in principle on the exclusion of air, such as packing it in close sealed vessels, wrapping in fine paper, covering the ends of the stalks with sealing-wax, or arranging it in boxes, filled with thoroughly dried sand, bran, straw, Fern or other similar substance, the greatest care in all cases must be taken that the packing material has no odour, for if it has, the fruit, besides losing a portion of its own natural aroma, will acquire some of the odour of the packing material, and the delicate flavour of the fruit, and consequently its value, will be destroyed. On the other hand, when fruit is preserved by cold, and especially when for this purpose it is gathered before it is perfectly ripe, it is often found that on removing it from the ice-house or cold well in which it has been preserved, though at first it has but little flavour, yet that on gently warming it and keeping it a few days, the flavour improves and decidedly increases. This and other similar facts may fairly lead to the consideration whether the odour and flavour of fruit which has been preserved some time in carbonic acid, nitrogen, or hydrogen, and which has in consequence become deteriorated, is, in truth, really altogether destroyed; and whether it might not be possible to recover the whole, or at least a portion, of the lost flavour? *Gard. Chron.*, June 7, 1851.

ROSE GARDEN.

ROSA HARDII.

In his collection of Roses at the Chelsea Show last week, Mr. George Prince included the pretty species of Rosa illustrated in Fig. 204, which was the object of a deal of admiration and interest from rosarians. Following the *Genus Rosa*, it was named Rosa-berberidifolia Hardii, but it seems that the correct name is Rosa Hardii. It was raised in the Jardin du Luxembourg, Paris, by Mons. Hardy, the Superintendent of the Gardens, in 1836, who sowed seeds of Rosa clinophylla, presumed to be fertilised with the pollen of a near-by plant of Rosa simplicifolia (syn. R. berberifolia). Like R. simplicifolia, which its flowers resemble, R. Hardii has never been common in cultivation, and is now a very rare plant. It is hardier and easier to cultivate than R. simplicifolia, and, while being suitable for growing under glass, would probably succeed out-of-doors under similar conditions to those afforded the less tender succulent plants—that is in a "sun-trap," and in a well-drained, good, loamy soil. Rosa Hardii is an elegant little bush of erect habit. The slender stems are freely furnished with spines and the leaves have five to seven pale green leaflets. As the illustration shows, the flowers are relatively large, being, when fully mature, quite two inches across. The petals are bright yellow and have a crimson blotch at the base, making a brilliant centre beneath the neat cluster of stamens. The downy calyx-tube usually has a few short prickles.

The Week's Work

THE ORCHID HOUSES.

By J. Collier, Gardener to Sir Jeremiah Colman, Bart., Gatton Park, Reigate, Surrey.

Repotting.—Dendrobium Phalaenopsis and D. formosum should be repotted so soon as young roots are seen to be developing from the base of the new shoot. The most suitable receptacles are shallow Orchid pans, with wire handles attached so that they may be suspended, if the plants are to be grown in a house that is lofty, or if they are to be placed on the plant stage near to the roof-glass ordinary flower pots will do equally well. These Dendrobiums revel in plenty of heat and moisture, and should be given every encouragement to develop their growths quickly. They need only to be shaded from sunlight during the hottest part of the day.

Cymbidiums.—If not already done, any necessary repotting of these useful Orchids should be given attention. No definite time can be stated for this operation, as the flowering season of these plants extends over a long period. There is no necessity for annual root disturbance, therefore, this should only take place when the compost has become exhausted or the plants have outgrown their receptacles. The roots are thick and fleshy, and a strong rooting-medium is needed. Good results may be obtained from turfy loam mixed with fibrous peat or Osmunda-fibre and partly decayed Oak leaves, to which is added a moderate quantity of crushed crocks. After taking the plant from the pot, disentangle the roots as much as possible without damaging them in any way, pick out loose portions of the old soil with a pointed stick, place clean crocks in the bottom of the pot to about one quarter its depth, and finish with compost to one inch below the rim of the receptacle.

General Remarks.—If the weather is seasonable very little fire-heat will now be needed in the houses. Plants in each division are growing freely, and a slight increase of warmth will be beneficial during hot, sunny days. Every care should be afforded the plants to build up strong, healthy pseudo-bulbs. A collection of Orchids is interesting at all seasons, but more especially at this time of the year when many are in flower and others are making their season's growth. Some plants of Thunias are sending up their flower-spikes, and may be watered on alternate occasions with weak liquid cow-manure. Calanthes are in full growth; as the plants fill their pots with roots, the latter should be watered more freely than hitherto.

THE KITCHEN GARDEN.

By F. Streeter, Gardener to Lord Leconfield, Petworth Park, Petworth, Sussex.

Leeks.—I strongly advise planting Leeks in trenches made similar to Celery trenches, as this prepares the ground for a deep-rooting crop the following season. Excellent results are, however, obtained by planting Leeks in holes made in heavily-manured ground with a dibber, about twelve inches apart. Place the young Leeks in the hole just leaving the top showing above ground. When planted, fill the hole with water and keep the plants well supplied with moisture. When they are growing strongly, feed the roots with manure water. The Leek needs to be blanched as it grows, which is not the case with most vegetables that are etiolated.

Globe Artichokes—Afford this strongly-growing crop a plentiful supply of manure water and concentrated fertilisers at the present stage, and do not allow the "chokes" to get too large before using them. Should dry, hot weather set in, apply a heavy mulch of well-decayed manure over the roots. New plantations will need water freely; these young plants are valuable as they will form a succession to those in established beds.

Endive.—For the first early supplies make a small sowing of Batavian Endive, which will prove very useful in the autumn. Select a shaded position and transplant the seedlings so soon as they can be handled, at a distance of fifteen inches each way.

Late Peas.—Continue to sow late varieties of Peas. Stake the earlier ones as they become fit, and place a heavy mulching of well-decayed manure along each side of the row. Should the soil in the trench prove very dry before sowing, give it a thorough soaking with water to promote quick germination. Early pods are now available on south borders and will gradually ease the demand for Asparagus.

Lettuce.—To maintain a plentiful supply of this salad, sowings should be made on frequent occasions and considerably more than is wanted owing to the plants hearting up quickly and running to seed. Keep the ground moist and stirred frequently with the Dutch hoe. Water the crop overhead in the evenings of hot days.

HARDY FRUIT GARDEN.

By W. Auton, Gardener to Viscount Elveden, Pyrford Court, Woking, Surrey.

Plums.—Whatever the prospect of the Plum crop in open quarters, trees on walls have set fruits freely, and they are now swelling well. Probably a little thinning of the crop will be necessary in some cases, but unless the fruits have set very thickly it is better to defer this work until after stoning, for a large number of fruits will probably drop during this period. On retentive soils, trees rarely suffer from lack of moisture unless the surface is neglected, but on light soils care should be taken that they do not become too dry at the roots, or much dropping of fruits may ensue. Syringe trees on walls freely, as nothing tends to prevent the spread of pests so much as frequent syringing, and with fruit trees on walls it is easy to ensure thorough syringings.

Pears.—The fruits of Pears, particularly those on wall trees, are swelling rapidly, and it is now easy to choose the best specimens and thin accordingly. If very fine specimens of the large varieties, such as Pitmaston Duchess, are required, the fruits should be thinned to about one fruit per square foot of surface. Although rainfall during the past month has been fairly heavy, attention should be paid to borders to ascertain if water is necessary, as wall trees frequently suffer from dryness when the normal rainfall is sufficient for trees in open quarters. If there is any tendency to overcrowding of growths, thin these to some extent and pinch the remaining growths when they have attained about a foot in length.

Gooseberries.—These will now be in constant demand for tarts, and in most cases the bushes will be the better for being relieved of part of their crop. In gathering the berries for this purpose, it is much to the advantage of the bush and the remaining berries if they are thinned as uniformly as possible over the entire area of the bush. If strong growths from the base are crowding the centre of the bushes remove them so that light and air can reach the fruits on the main branches.

General Remarks.—Cherries, Strawberries, and bush fruits generally, will soon require protection from birds, and the protecting material should be held in readiness to be placed in position so soon as the fruits approach ripeness. Wire netting of one inch mesh, fixed around fruit quarters, with ordinary nets stretched over the top, afford much more security against birds than can be obtained by nets alone. Black Currants are carrying a heavy crop of fruit, and if the weather is dry, liberal applications of water and diluted liquid manure will be necessary to enable the crop to finish in good condition.

FRUITS UNDER GLASS.

By T. Pateman, Gardener to Sir Charles Nall-Cain, Brocket Hall, Hertfordshire.

Early Peaches and Nectarines.—Trees that were started into growth early in the year to produce an early crop will, in most cases, have ripened their fruits, especially such varieties as Duke of York Peach and Cardinal Nectarine. These varieties, whether grown in pots or planted out in borders, should receive a thorough syringing so soon as all the fruits have been gathered. If the trees are clean, rain water will suffice, but if insect pests, such as red spider or thrip are present, the trees should be syringed vigorously with an insecticide and afterwards with clear water on frequent occasions. This treatment should keep the trees clean and healthy. Trees growing in tubs or other receptacles, that have been liberally treated with manures to assist the crop, should still receive liberal supplies of liquid manure during the next two months, especially any that have borne heavy crops. The trees may be stood out-of-doors, in partial shade, for the first two or three weeks; otherwise the foliage will be liable to scorching should the weather prove hot. After they have become acclimatised to outside conditions they may be exposed fully to the sunshine. See that the roots are well supplied with water and do any pruning that is necessary, such as the removal of the old fruiting wood before the transference fo the trees takes place.

Early Muscat Vines in pots.—The berries of these vines have passed the stoning stage, and will shortly begin to colour. When they commence to change colour, the atmosphere of the vinery should be kept on the dry side, and the amount of water at the roots reduced slightly, but not to such an extent as to cause flagging of the leaves. Vines in pots dry out quickly and need great care in watering during hot days, but less moisture is required in dull, sunless weather. The maximum night temperature should be 70°, with a rise of 15° or more during the day with sun-heat.

Muscat Vinery.—Muscat vines planted out in borders are making good progress. Maintain a genial atmosphere in the vinery during the time the berries are swelling freely. It will be wise to examine the crop, and if the number of bunches is considered to be excessive, the crop should be reduced at once, for vines that are overcropped will show signs of weakness in the ensuing year. The border, if not already done, should receive a good mulching of old farmyard manure; do not use the manure in a fresh state or the foliage will scorch badly in hot weather. Keep the border in a moist condition with liquid manure, and this form of food should be alternated with a concentrated vine manure until the Grapes begin to colour, when clear water only should be used, and the amount of atmospheric moisture reduced.

Tomatos.—The fruits are ripening freely, and a little extra care will be needed in watering. See that the soil never becomes dry, or splitting of the fruits will follow. The feeding of the plants should be done judiciously or the fruits will grow coarse and lack quality.

THE FLOWER GARDEN.

By F. C. Puddle, Gardener to Lord Aberconway, Bodnant, Taly-Cafn, North Wales.

Alpine Primulas.—Most of the alpine Primulas are passing out of flower, and any plants of P. Auricula, P. pubescens, P. hirsuta and allied species which have become unduly crowded or leggy may be divided and replanted. When planting, care should be taken that the collars of the plants are well above the surface of the soil, otherwise damping of the crowns may occur during winter. Any plants which do not require replanting may be top-dressed with a mixture of loam, leaf-mould and sharp sand. If possible, work a few small stones between and around the plants to assist in keeping the roots cool during summer, and to ensure good drainage in winter.

Primula Auricula.—The florists' varieties of Primula Auricula are not so popular as they were a few years ago, and yet they have a distinct charm. Their rich colours, delicate scents and symmetrical forms are very fascinating. They would make excellent subjects for the alpine house but for the fact that the formality of their flowers, which almost approaches the artificial, does not harmonise with the natural beauty of the usual subjects of this house. Although all the Auriculas are quite hardy, it is necessary to grow the show varieties under glass to preserve the beautiful farina on the leaves and flowers. The alpine varieties may be grown in the open, and theyare excellent subjects for wall-gardening. It is, however, a good practice to keep a stock of the choicer varieties under glass, and these, together with the show varieties, should now receive their annual potting. A suitable compost consists of four parts loam and two parts leaf-mould, with sufficient sharp sand and mortar rubble to ensure free drainage. Care should be taken not to use excessively large pots, for overpotting is frequently the cause of the plants being unhealthy. Offsets may be removed and placed in small pots containing a very sandy compost until they become established. When potting the plants, keep a sharp watch for any signs of woolly aphis, and remove any detected with a brush dipped in methylated spirit. After potting them, the plants may be stood in a cool, airy house, or in a cold frame, on the shady side of a hedge or building for the summer. Careful watering of these plants is necessary at all times.

PLANTS UNDER GLASS.

By John Coutts, Assistant Curator, Royal Botanic Gardens, Kew.

Cinerarias.—If not already done, make a sowing of Cinerarias to obtain plants for early flowering. The intermediate rather than the large-flowered florists' types should be favoured where they are required for decorative work, while the Stellata varieties are best where tall plants for groups are required. The seeds should be sown in a cool greenhouse, and during all stages of their cultivation the plants need a cool, moist atmosphere.

Begonia Gloire de Sceaux.—Cuttings of this fine winter-flowering Begonia should now be inserted singly in small pots of light, sandy soil. They will root quickly in a warm propagating case, and when removed from the case they should be stood on the plant stage near to the roof-glass. They should be potted on as they require it until they are in six-inch or seven-inch pots, in which good examples should be flowered. Throughout their period of active growth these Begonias require a temperature of 60°, but when in flower a somewhat lower temperature is suitable. In common with all Begonias, they are liable to attacks of Begonia mite, which may be prevented by the use of the sulphur vaporiser; they are also subject to attacks of root eel-worm, and where this pest has proved troublesome, the soil should be sterilised by heat.

Begonia manicata.—This is another beautiful winter-flowering Begonia which is much neglected at the present day. The plant remains in good condition for three or four months in a house in which a minimum night temperature of 45° to 50° can be maintained. Cuttings should be inserted in the same manner as advised for Begonia Gloire de Sceaux. During its growing period, this species does best in a temperature of 55° to 60°. During their first season good flowering specimens may be produced in six-inch or seven-inch pots; they prove very useful for furnishing the plant stages. Plants raised in this way last year should now be potted on into nine-inch or ten-inch pots, in which well-grown examples will, when in flower, attain a height of three to four feet, and such plants are invaluable for furnishing the beds.

Brunfelsia (syn. Franciscea).—The Brunfelsias are old garden favourites deserving of more general cultivation, as the several species furnish a display in the stove and greenhouse over a long period, usually during the winter and spring. The species common in cultivation are B. calycina, B. eximia and B. macrantha; the last two, although often regarded as distinct species, are doubtless varieties of B. calycina. B. macrantha, with its large, violet-purple flowers, which are produced in wonderful profusion, is the best of them all, although all are worthy of a place in gardens. These Brunfelsias do equally well in pots or planted out in a well-drained bed in a warm house. If grown throughout in a stove temperature, they flower during the winter; on the contrary, if it is desired to have them for greenhouse decoration, they usually flower during April and May. B. americana is equally useful, the flowers opening yellow and then turning white; this species is very sweetly scented. All the species are easily propagated from cuttings, which root readily in a moderate amount of bottom-heat. The plants grow freely in a light, rich compost of loam, leaf-mould and peat, and during their growing period require a temperature of 60° to 65°. When they have completed their growth they should be afforded cooler and drier conditions and less water at the roots. There are numbers of other beautiful and interesting species, but they are not generally in cultivation, except in botanic gardens.

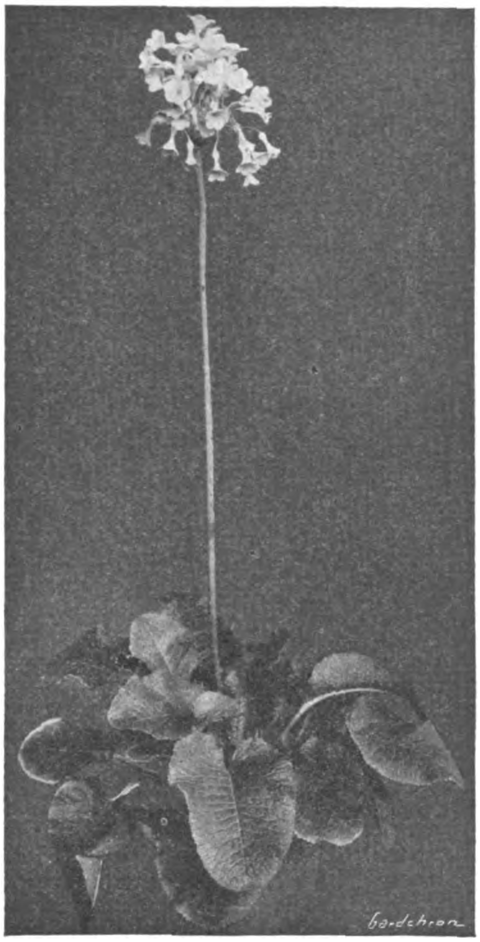


FIG. 205.—PRIMULA FLORINDAE.

R.H.S. First-Class Certificate, May 25. Flowers Primrose-yellow. Shown by Messrs. Oliver and Hunter, Moniaive, Dumfries. Much reduced. (see p. 387.)

FOR NORTHERN GARDENERS.

By A. T. Harrison, Gardener to the Marquis of Ailsa, Culzean Castle, Maybole, Ayrshire.

Perpetual-flowering Carnations.—Young plants which are growing freely in cool houses are ready for their final potting. Use a rich compost consisting of good loam, leaf-mould, and either rough sea-sand or fine shingle which contains a large proportion of broken shells: to every barrowful of the compost add a six-inch potful of quarter-inch bones and another of an approved Carnation manure. These materials, with the addition of either soot or wood-ash, will, when thoroughly mixed, provide a rich rooting-medium for the young plants, in which they will make strong, sturdy growths. The stopping of the growths of such varieties as Carola, Baroness de Brienen and others of a like habit, should cease after this date, but the taller and freer-growing sorts, represented by Tarzan, R. F. Felton, etc., may be stopped up to the middle of July. Always pot firmly, using a potting stick with which to ram the soil between the balls and the edges of the new pots, which should not be less than six inches in diameter. Water the plants carefully for the next three or four weeks, and spray them occasionally overhead in preference to saturating the new soil, until such time as the roots are again showing, which may be determined by turning a plant out of its pot for examination. If new roots are evident water may be applied freely as required.

Planting out Vegetables.—This is a busy time in the vegetable garden, and all spring-sown plants of the Brassica family are ready for transference to their summer and autumn quarters. Cauliflowers, Cabbages, Savoys, Brussels Sprouts and Kales should be transplanted at once. Do not be deterred by dry weather, for if the roots are given one good soaking most of these plants will soon recover and grow away quite normally. It sometimes happens that the ground intended for winter vegetables is occupied by some other crop; in that case, do not let the seedlings become crowded in the seed-bed, but transplant sufficient for requirements in any odd corner, from four to six inches apart. These plants may be afterwards transferred to their permanent places when the ground has been cleared and made ready for their reception.

Celery.—This important vegetable should now be ready for planting in trenches that have been prepared and well-enriched with manure some time previously. Give the sides of the trench and surface of the soil a dusting of old soot to deter slugs, and transfer the plants carefully with good balls of soil to the trenches from the frames in which they have been growing. Plenty of water is essential to the growth of good Celery, and from the time it is planted until earthed up this crop should never be allowed to suffer for want of moisture. Celery disease has not been very prevalent in this neighbourhood for a year or two, but if any sign of it is noticeable on the young plants, they should be rejected and only fresh, healthy seedlings planted.

Vegetable Marrows.—Plants raised from seeds sown about the end of April are ready for planting out, and where beds have been made ready for their reception, they should be hardened off and, if necessary, given the protection of hand-lights during several nights thereafter. Marrows do not require the large mounds of manure that are often used, but may be grown successfully on well-sheltered borders, such as have been cropped with early Potatos. Such plants, if not allowed to suffer from lack of water, make stout, short-jointed growths, and produce abundant crops. The points of the leading shoots should be pinched out when the plants commence to grow freely again to encourage the production of numerous lateral shoots, these in turn being stopped when a fair crop of Marrows is assured, and the sub-laterals that form will carry numerous smaller fruits of good quality before the end of the season. If difficulty is experienced in getting the Marrows to set, hand fertilisation may be resorted to, when it will be found an easy matter to ensure a good crop.

TREES AND SHRUBS.

HELIANTHEMUM LIBANOTIS.

Though introduced from Southern Europe so far back as 1752, this Helianthemum is singularly rare in gardens, even in those parts of the country where the climate allows Sun-Roses to be grown to perfection. If H. Libanotis were a species of no special merit, one might regard this neglect with less surprise, but it is a shrub of most marked distinction, and one of the loveliest of its remarkable race.

H. Libanotis is a loose-habited, elegant little shrub with dark green, narrow leaves, growing to rather more than a foot in height; the foliage suggests that of the Rosemary, hence the synonym H. rosmarinifolium, a name often applied to its closest ally, the white-flowered H. umbellatum, the leaves of which are rather broader and distinctly darker than those of H. Libanotis. The last-mentioned species, however, excels in the size and beauty of its flowers, these being fully one inch across and of an exquisite shade of warm yellow. In colour, substance and size, they approach most nearly to those of H. alyssoides, and one could scarcely give them higher praise.

H. Libanotis is sufficiently hardy for most places where Sun-Roses are grown. This winter it has withstood close upon 20° of frost without injury, but it is perhaps well to note that our plants are growing in very light, well-drained, stony soil. The flowering season extends from April onwards for many weeks. *A. T. J.*

ENKIANTHUS CAMPANULATUS.

This deciduous shrub from Japan thrives in well-drained peat and loam free from lime. A half-shaded situation is desirable and dryness at the roots must be guarded against.

Freely-flowered specimens of this Ericaceous plant are very attractive; the tiny bells, produced in fascicled racemes are pendent, greenish-white, tipped with red, and are produced freely. The young foliage is not the least of its attractions, being of a pale and very fresh-looking green, and in beautiful contrast to the delicately-coloured flowers. Propagation is effected by cuttings of ripe wood, inserted in spring and rooted without fire-heat. *Ralph E. Arnold.*

BARK-SPLITTING IN RHODODENDRONS.

The bark of some of the newer Chinese Rhododendrons is apt to split up the main stems and although the wound is not of a mortal nature, it proclaims a weakness in the plants. The cause is a complete puzzle to me; whether it is direct evidence of sunstroke, the inaptitude of the plants to resist drought, frost, or too much peat mixture, is to me inexplainable.

I have seen these Rhododendrons injured in this manner in the open, in exposed beds more than elsewhere, and I think such places are not suited to them, especially if the soil is kept strictly clean by the use of the hoe; far better if the soil surface is strewn with the plants' own refuse of leaves, sticks or anything that is inclined to keep the roots cool in warm, dry weather, or even allow the plants to embrace one another as to give natural shade.

The grower can, of course, anticipate dry weather and apply heavy mulchings of leaves before drought is manifest. Another remedy would be to plant in the partial shade of Pines, etc. *C. F. C.*

CLIANTHUS PUNICEUS ALBA.

Owing, no doubt, largely to the warm season of 1925, this fine shrub is flowering most profusely this spring, and while it is not so showy as the red form, it is a very charming plant, and might with advantage be tried in many more of our western gardens, where, given the shelter of a wall, it will survive any ordinary winter.

The creamy-white flowers develop on drooping racemes, produced in the axils of the leaves of the previous season's growths, and are noticeable quite a long time before winter in the bud stage. As the spring advances, these buds and their pendulous stalk lengthen, and the curiously-shaped flowers are at their best during May.

It is rather singular that no mention is made of these beautiful wall plants in *Trees and Shrubs Hardy in the British Isles*, as the author is no doubt well aware how frequently both forms are to be seen in Cornwall and also in Ireland, while in various gardens of western Scotland Clianthus puniceus may also be found doing remarkably well. *A. T. H.*

FLOWER GARDEN.

SOME SUGGESTIONS FOR BEDDING.

The time for commencing planting the summer flower beds has arrived, but with the present cold spring, it will be well to delay the planting of the more tender subjects, if the positions chosen for them are not protected.

When plants may be safely bedded out depends on the climate of the particular district, and it is much better to wait a few days, rather than risk the plants being disfigured by cold winds or late frosts.

The blending of colours is a subject which requires great attention in all bedding schemes, and each set of beds should be so arranged that prevailing tints harmonise as a whole.

Garish, kaleidoscopic arrangements should be carefully avoided, for above all things a flower garden should be both pleasing and restful to the eyes. The most artistic effect is usually produced by using not more than two or three shades of colour in each scheme. Zonal Pelargoniums, although not so freely used for bedding as they were a few years ago, are still worthy of a place in the flower garden, but to be really effective the scarlet varieties should be so placed that mixed flower borders or other colour schemes do not come into the same line of sight. The best background for these showy plants is provided by evergreen shrubs. In sheltered positions, standard and bush Fuchsias, with a suitable groundwork of dwarf plants, make a rich and beautiful display. The bronze-leaved F. triphylla hybrids, F. Thalia and F. Anderken von Hoekel, with a groundwork of Begonias in orange and yellow shades, or pale apricot (intermediate). Antirrhinums provide a very pleasing combination, whilst the pink and rose shades of either Begonias or Antirrhinums make a very appropriate groundwork for the red and purple varieties of Fuchsias. Violas also make good carpeting plants for beds of Fuchsias.

Heliotropes, in association with the lemon-coloured Calceolaria amplexicaulis, provide a very charming feature, and a similar colour scheme may be produced by combining pale yellow Antirrhinums and Nemesia Blue Gem. Isolated beds on lawns give scope for many pleasing arrangements:—purple and white Stocks with Gladiolus Master Wieste; orange Nemesias and purple Salpiglossis, or Gladiolus Baron Hulot, Lobelia cardinalis and yellow Violas, are a few pleasing combinations to adopt.

Various colour blends of Antirrhinums and dwarf Dahlias are also very effective, whilst large beds of the popular Dahlia Coltness Gem, may be improved by the insertion of a few plants of any slightly taller orange-coloured variety of single Dahlias. *F. C. Puddle.*

TITHONIA SPECIOSA.

This pretty annual is well worth growing for its very brilliant range of orange-scarlet flowers.

It is a Composite, about four feet in height, and occasionally more; the rich orange-scarlet flowers are produced on a one-headed peduncle and closely resemble those of a single Zinnia; the leaves are petiolate, undivided, or sometimes three-lobed, and the terete stem is erect.

The plant is easily raised from seeds and thrives in any ordinarily good, light soil; it is half-hardy.

This species was introduced from Mexico so long ago as 1833, and has been referred to Helianthus speciosus. *A. E. R.*

PHACELIA CAMPANULARIA.

This charming South Californian annual is a plant of neat growth, six to ten inches high with bell-shaped, erect flowers of a brilliant blue colour almost rivalling the most admired Gentians.

It is a member of the Hydrophyllaceae and is of the easiest possible culture the seeds germinating freely if sown in the position where the plants are required to flower; the spreading nature of this annual enables it to cover the ground quickly, when it forms a dense mass from which its intensely blue flowers are given in lavish profusion. The plant needs plenty of sunshine and succeeds best in rather dry warm situations. It makes a pretty edging to beds and borders. It is figured in *Gard. Chron., August* 4, 1883.

HARDY FLOWER BORDER.

ANEMONE JAPONICA.

Even if only the type plant is considered, Anemone japonica represents the ideal hardy border plant; now that several very beautiful varieties are obtainable, these Anemones may well become features of the late summer and autumn garden. Planted in light, loamy soils, and if not too frequently disturbed, they will grow freely, even in positions exposed to full sunlight, though they prefer a half-shaded situation. The best effect is produced by large masses of the plants, although a single specimen is very attractive.

A ready means of propagation is by root-cuttings, or careful division of the roots may be resorted to, but I much prefer the first-named method.

The type has rosy-carmine flowers, about two inches across, on stalks which spring from a whorl of three or four leaves; the anthers are yellow. The leaves are ternate, with lobed and toothed segments, and the plant attains to a height of about three feet; it was introduced from Japan in 1844. A selection of the best varieties includes A. j. alba, synonymous with Honorine Joubert, a most valuable white flower for decorative purposes; Queen Charlotte, one of the very best forms, producing large, semi-double flowers in a pretty shade of pink; it is a good companion to Monte Rosa, which has bright pink, semi-double flowers. Splendid white forms are Lord Ardilaun, Lady Ardilaun, large and with a double row of petals, Giante des Blanches, very pure white and of very strong growth; and Whirlwind, a well-known and excellent white variety.

Other desirable coloured sorts may be found in Lovely, with semi-double flowers of a delicate rose shade; crispa, sometimes catalogued as Lady Gilmour, carmine-rose with pretty, crisped foliage; and rosea elegans, a free-flowering, semi-double pink variety of excellent habit.

A novelty of recent introduction is Louise Uhink, described as a robust form with dark green, leathery foliage, and very large, white flowers with two rows of petals.

A well-known and valued authority on gardening subjects has written that Anemone japonica may be taken as the perfect model of a hardy plant; all may not agree, but most will admit its great value and beauty in the garden and its undoubted worth for decorative purposes, while to these good qualities may be added its easy culture under varied conditions. *Ralph E. Arnold.*

ALPINE GARDEN.

LITHOSPERMUM PROSTRATUM.

THE rock garden possesses few plants equal in beauty to Lithospermum prostratum, the prostrate Gromwell, which is a general favourite; large plants trailing over rocks and veiling them with fine foliage and exquisite flowers of deep blue are especially beautiful. The introduction of that glorious variety Heavenly Blue, has caused a great demand for the inclusion of either the type or this variety in gardens where the plant was not previously represented.

It is unfortunate, however, that disappointments have been experienced by some would-be cultivators, and that failures have been reported from various parts of the country. The presence of lime in the soil is a cause of failure in some gardens; too loose planting is another reason why plants do not succeed, but, above all old plants will frequently collapse without an apparent cause, even after they have been many years in the same position and have never before shown signs of decay. The cause of collapse of old plants is difficult to determine except that it may be due to old age and nothing more.

This Lithospermum appears to like sun and a firm, but not too stiff, soil. The flowers of the variety Heavenly Blue are much brighter and more effective than those of the type, but not more beautiful—for that is scarcely possible. *S. Arnott.*

GENTIANA PYRENAICA.

THIS delightful Gentian opened its first blossoms towards the end of April, and the very distinctive form and colour of these blooms cannot fail to arrest attention. They rise an inch or two above the pads of glossy-green, pointed leafage, which looks much like that of G. verna, unfurling the broadly funnel-shaped corolla; the five well-rounded lobes of the flower are each deeply interlobed, so that the bloom has the appearance of a ten-pointed star. The colour has been variously described as deep blue, ultra-marine and purple, but to my eye, they are nothing more or less than violet, as soft and full in tone as the bloom is rich in texture.

G. pyrenaica is a native of the Pyrenees and other parts of Europe and western Asia, but it appears to be somewhat restricted in its range, and Farrer informs us that it is not one of the highest alpines, it being found in "turfy places, damp or dry, on lime or granite, between 4,000 and 5,500 feet."

In gardens, a medium to cool gritty loam, freely enriched with old leaf soil, seems to suit the plant. *A. T. Johnson, Ro Wen, Conway, North Wales.*

INTERESTING PLANTS IN FLOWER IN THE ROCKERY AT EDINBURGH BOTANIC GARDEN.

COLUREA elegans, a native of west China, is an interesting plant, at present in flower on the rock garden here. In many respects it resembles a Potentilla, with bright yellow flowers, half-an-inch across. When grouped it has a wonderful effect and grows best in a moderately dry situation. Lewisia Cotyledon, a Californian plant of great beauty, is flowering in the dry wall. It adapts itself to this situation and has this year again produced many spikes of richly marked flowers. It may also be grown in the moraine, as ample drainage is an essential provision for its success.

The North American family, Phyllodoce or Bryanthus, include useful rock plants. P. empetriformis, P. coerulea and P. nipponica are nearly over, but P. Breweri still continues to flower. P. aleutica is not so far forward, but special attention is made of it as having white or pale lemon flowers, which are an agreeable contrast to the pink of other species. Being peat-lovers, their cultivation is similar to that of most members of the Erica family. Other attractive plants in the same Natural Order, and not too well known, are numbers of species of Cassiope. Those most conspicuous are C. fastigiata, C. Mertensiana, C. tretragona and C. selaginoides, which grow and flower freely in Edinburgh. *A. McCutcheon, Edinburgh Botanic Garden.*

MOSSY SAXIFRAGES AT KEW.

THE Supplementary Illustration presented with this issue shows colonies of mossy Saxifrages growing in the rock-garden at Kew. The genus Saxifraga affords probably as many subjects for the rockery as any other family of plants and the members include some most delightful species that are attractive both in and out of flower.

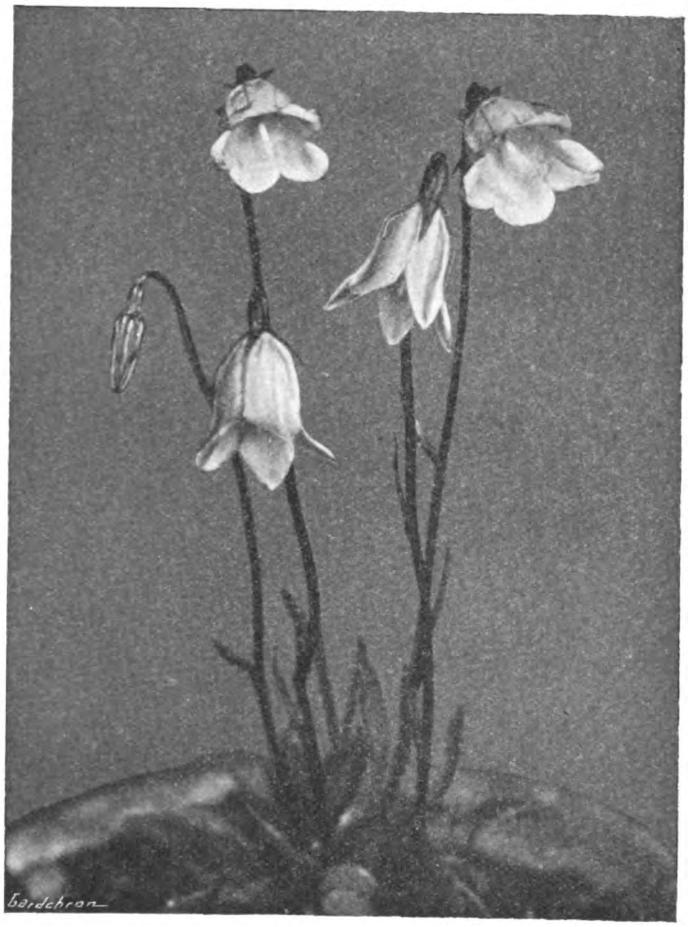


FIG. 206.—CAMPANULA CRENULATA.

R.H.S. Award of Merit, May 25. Flowers violet-blue. Shown by Mr. A. K. Bulley. (see p. 387).

Of the two main sections into which the dwarfer Saxifrages are usually divided—the encrusted and mossy types—the latter include some of the most floriferous species, making in spring, as may be seen on reference to the Supplementary Illustration, great patches of flowers, of which white and red predominate. The red forms have been derived chiefly from S. muscoides var. atropurpurea and the most notable of the progeny is the one known as Guilford Seedling, which was also one of the first raised. Others of note in this section are S. bathoniensis, which has beautiful scarlet-crimson flowers produced freely on stout, branching stems; S. Bakeri, with rich carmine flowers; S. sanguinea superba which is one of the richest coloured red-flowering Saxifrages in cultivation, the flowers being rich crimson, and S. decipiens grandiflora, one of the best of its type, with large flowers of rich red fading to pink, somewhat similar to those of S. bathoniensis. Of those in this section with white flowers, one of the most beautiful is S. Wallacei, a plant of unknown origin and probably a garden hybrid. This plant produces a profusion of large flowers which are sweetly scented, and is a fine subject for spring bedding.

Of the Caespitosae type, which includes some of the larger mossy Saxifrages with red flowers, the more notable are S. caespitosa itself, which produces white flowers on stems from four inches high in early summer; its near relative S. decipiens, which is of more robust habit and has taller stems and larger flowers than the former; and S. sponhemica, which produces a profusion of white flowers above its green foliage in early summer.

There are numerous other mossy rockfoils, including those of the Geranioidae group, such as S. geranioides, and S. pedemontana, and those of the Hypnoidae group, which includes the Doverdale Moss, S. hypnoides, a species that is attractive in the rock garden all the year round,—in winter with its beautiful mat of green foliage and in spring and early summer with its sheets of white flowers.

The small, mossy rockfoils included under the group Muscoideae are very charming alpines, including S. muscoides, of which the variety atropurpurea is, as already stated, the progenator of the red-flowered hybrids that are so plentiful in cultivation.

ERYSIMUM LINIFOLIUM.

THIS alpine, which is frequently catalogued under the name of Cheiranthus linifolius, has been definitely transferred to the Erysimums or Hedge Mustards. It is one of the worthiest of the race to which it belongs and, if planted in a suitable place, will give abounding satisfaction. Mr. Farrer states that it grows to two feet high on the dry cliffs of the Serra de Estrella, in Portugal. Mr. Clarence Elliot, who introduced the plant in gardens, informs us that it was collected by the late Mr. Cedric Bucknall.

In gardens the plant assumes more of a prostrate than an erect habit and generally grows only a few inches high, bearing above the narrow foliage, on stems some five or six inches high, lilac or purple flowers. A still dwarfer variety—E. filifolium—is recorded, but it does not appear to be offered by the trade.

E. linifolium has been described as a biennial, but it is perennial in suitable conditions, such as in hot, dry, well-drained soils in full sun. Old plants do not transplant satisfactorily and it is best to raise young stock from seeds and to transplant the seedlings so soon as they are fit to handle. I have found this Erysimum do well in a sunny moraine. *A.*

NOTES FROM ABERDEEN.

As a result of the cold weather which has characterised the past few weeks, plant life outdoors has moved but slowly. Nevertheless, there have been a number of interesting plants in flower.

At the beginning of May a plant of Amelanchier canadensis adorned a south wall with its delicate blossoms, while the same wall later afforded shelter for Piptanthus nepalensis to display its pale yellow flowers. There appears to be some prejudice against this shrub on the ground of its supposed tenderness, but it is far hardier than is usually supposed. It is commonly referred to as the Evergreen Laburnum, and was introduced into this country from the temperate Himalayas in 1821. It is of somewhat erect growth, making stout branches with plenty of shoots, and possesses fine, glossy green leaves. It has for a near neighbour Choisya ternata, which first opened its fragrant blossoms at the beginning of the second week in May. Further away, a fair space on the wall is occupied by a plant of Ribes speciosum, frequently known in gardens under its synonym of R. fuchsioides, a name which is certainly more descriptive. It is one of the finest of flowering shrubs, and although a native of California, from whence it was introduced in 1829, it is quite hardy.

A sunk garden is one of the features of the Cruickshank Botanic Garden, and affords shelter for a number of species of recent introduction. At the present time, however, its chief ornament is a mass of Cheiranthus Allionii, a veritable sea of orange which is glorious to behold.

Two other shrubs flowering outdoors call for mention. They both flower well and make a good display in the garden. One of these shrubs is Potentilla fruticosa alba, with large, white flowers, and rather upright in growth. The other, Cytisus Beanii, is of almost prostrate habit, producing a wealth of golden-yellow flowers. It is a hybrid raised at Kew and a valuable acquisition to the rock garden.

Under glass, Phaedranassa aurantiaca, an interesting little bulbous plant, was at its best on May 13. It produces a single stem, some three or four inches in length, which branches so as to produce four pendant, red, tubular flowers. The stigma and stamens protrude a little way beyond the scarlet tubular perianth. The leaves appear after flowering is over.

Two other bulbous plants which flowered under glass are Lilium longifolium and Lilium candidum.

A Rhododendron of note, R. Gibsonii, is just going over after having been in flower for some weeks; the white flowers are suffused with pink. It has handsome, dark green leaves which are hairy, and the plant itself is but three feet in height, but extremely floriferous. Another species of interest in flower is R. Dalhousiae, with sulphur-yellow blossoms, which turn white with age.

One of the most interesting plants under glass was Perantha Forrestii, a member of the Gesneraceae, with radical leaves arranged in a rosette. The plant developed four hairy flower stems, each of which produced two flowers consisting of a narrow, tubular corolla of a pale yellow colour set in a small, reddish-brown, hairy calyx. It is a very pretty little plant and succeeds well in a cool greenhouse. In conclusion, mention may be made of a little Cactus, Mamillaria pusilla, which, being in flower, and bearing bright red fruits at the same time, never fails to attract attention. It is only an inch or so in height. *Robert H. Jeffers, Cruickshank Botanic Garden, Aberdeen.*

A TRAVELLER'S OBSERVATIONS.

(*Concluded from* p. 369).

Horticulture in New Zealand.

The city and province of Nelson are situated in the north of the south island of New Zealand. I had read so much about its good soil and fine climate that I resolved we should spend a long week-end at Nelson. One goes on board a steamer at Wellington about 8 p.m. and wakes up next morning in Nelson harbour.

The province has long been noted as a centre around which a very wide range of fruits may be successfully grown. Apples are the principal crop, Tomatos are a big thing, and Raspberries, Strawberries, Peaches, Apricots, Nectarines, Plums, Pears and Grapes are well grown. Hops and Tobacco are frequently seen and green Peas in spring and early summer are a speciality in the Wellington and other large markets. Two-thirds of the Apples exported from New Zealand go from Nelson and are grown in the province. This commercial Apple-growing began in 1910. During the war the industry had a very bad time. The South American, one of the largest markets, was lost, and all exports were in the end temporarily stopped. Since 1919 markets have, of course, recovered. The total area planted in commercial orchards in New Zealand is 30,000 acres, rather more than one-fourth of the whole, or 8,930 acres, being in Nelson. As showing the importance of the Apple growing industry, 7,830 acres of the 8,930 are planted under Apples, and for the year 1925 158,744 cases were exported. One grower told me that last season he exported close on 4,000 cases, and his returns were nearly £4,000.

Tomato-Growing.

Some figures I obtained from one of the best growers, when he visited me at my hotel in the evening after I had been over his place in the forenoon, will convey an idea of the importance of Tomato crops to Nelson. About seventy acres are devoted to out-door culture. This crop is ready about January 1 (mid-summer in New Zealand), and is three weeks ahead of out-door crops generally, therefore a good market is always found; 700,000 plants are planted in the seventy acres, and the crop yields round about 100,000 cases of a gross value of £50,000 to £55,000. To capture an earlier market an area of ten acres is under glass; two hundred houses, averaging eighty by twenty-two feet, are set out with 640 plants each. These yield 20,000 cases, of a value of £20,000, which are sold from mid-November to the end of January. The varieties grown are Dreadnought, Improved Winter Beauty and Kondine Red.

Growers have found, as others elsewhere have found, decreasing yields, although the supply of plant foods in the soil had increased largely. The best cure for this soil sickness is stated briefly at the end of a report on experiments carried out by Mr. T. Rigg, Agricultural Chemist to the Cawthron Institute, as follows:—"In the treatment of old glasshouse soils at Nelson, where failure of Tomato plants is occurring, steam sterilisation of the soil and chemical treatment with carbon disulphide have proved the most effective remedies. Toluene carbolic acid and formalin treatment of the soil were less effective."

Nelson has an active Tomato-growers' Association of one hundred members.

The Cawthron Institute of Scientific Research.

A sum of £240,000 was left by the late Mr. Thomas Cawthron (who was born at Camberwell, London, in 1883) for the establishment of the above institute, but stamp duty amounting to £40,000 was taken from the total by the New Zealand Government, which surely was an unpardonable procedure in such a case. The trustees in 1919 purchased a fine fourteen-roomed mansion, and converted it into a laboratory. A director was secured in Professor T. H. Easterfield, and he is supported by an able and enthusiastic staff who are tackling many problems of first importance to horticulturists and fruit-growers.

A New Zealand Rock-Garden Society.

The Nelson Rock Garden Society was started a few years ago, and has now 223 members scattered over the Dominion. It is really a self-help society to encourage rock and alpine gardening in all its phases. The venue of the Nelson Rock Garden surrounds the bowling green, a large section leading up to the entrance and a smaller one extending along one side of the green. Correspondence is encouraged between members, and between members and the secretary the letters number about one hundred per month. Helpful advice is given wherever possible, and the exchange of plants goes on continuously.

The importation of the rarer species and varieties from Britain has been revived on quite a large scale; it had fallen off almost entirely since 1914. Lists are sent to the secretary and a combined order is made up. Last season a consignment of over one hundred plants was received from Messrs. Bakers of Wolverhampton, and the losses on this lot did not exceed two per cent. The Society is entrusted with the requirements of botanical gardens and nurserymen, and their lots come out with the others. It is found that the percentage of losses in a big consignment is much less than if numbers of small consignments are sent separately, while the expense for packing and freight is, of course, very much less.

The personality at the centre of this interesting work is Mr. A. Wilkinson (a retired business gentleman) who is secretary and treasurer, and spends much of his spare time on work in the garden. With him it is a labour of love, and he declares that he is amply repaid for all his trouble by the beautiful sentiments and appreciation received from members in all parts of the Dominion.

It is the desire of the Society to obtain, in time, all good New Zealand plants introduced to England. Mr. Wilkinson is now working on Veronicas, and has got together over eighty species, beginning with the very dwarf, encrusted looking V. Cheesmanii. Another group is the Celmesias (New Zealand Daisies), of which twenty-six forms are already established in the Nelson Rock Garden, and there are many more to come from the mountains. At the next meeting the title of the Society will be changed to that of The New Zealand Alpine and Rock Garden Society.

There is no railway to Nelson, all produce being shipped by water. On the Monday morning we made an early start by car on a run of one hundred miles to Reefton in the west, *via* the famous Buller Gorge—a scene of magnificent wildness. Next morning we started by train and reached Christchurch in the evening, traversing the inland crossways, a long portion of the trip being through sublime mountain scenery, and the last few hours over the fertile rolling plains of the province of Canterbury. *W. Cuthbertson.*

INDOOR PLANTS.

IMPATIENS.

MANY of the Balsams are valuable decorative plants for the greenhouse and conservatory. Impatiens Balsamina, the Garden Balsam, although not so generally grown as it used to be, is still useful for maintaining a display in the conservatory; by making successional sowings a display may be kept up through the summer and autumn. Although the seeds may be sown in a warm house, the subsequent cultivation is best carried out in a cool house, or even in cold frames, as the plants are then much sturdier than those grown in a higher temperature. The successful cultivation of this plant presents no difficulty; it grows freely in a rich potting compost, and when well established in the final pots, the roots may be fed liberally with stimulants. In common with all Impatiens, this species is very subject to attacks of Begonia mite, which may be prevented by the use of the sulphur vaporiser. The perennial species are also subject to attacks of root-eel-worm.

Impatiens Sultanii is usually treated as an annual, and succeeds under the same treatment advised for I. Balsamina. Superior colour forms may be perpetuated by means of cuttings.

Impatiens Holstii is also easily raised from seeds or by means of cuttings, and is a valuable plant for greenhouse decoration. The type, with small, brilliant scarlet flowers, is very beautiful, but forms with larger flowers may be selected from a batch of seedlings. In the earlier months of the year this plant should be grown in an intermediate temperature, but during the summer it grows freely in a cool greenhouse; indeed, in the south it may successfully be used for summer bedding.

I. Olivieri is the giant of the indoor species, and it is surprising that this beautiful plant is not more generally cultivated; although it has been grown and admired for many years at Kew, I am not aware that any of our nurserymen offer it. Its large, rosy mauve flowers look like miniature Miltonias, and the plant flowers more or less all the year round. Specimens in six-inch pots are useful for furnishing the plant stages, while those grown in large pots or tubs make fine subjects for the beds. Planted out in a bed in the conservatory this Balsam grows six feet to eight feet high, and as much through.

I. Hawkeri is another choice species, with fine, dark red flowers, and is just as easily grown as the others, but requires stove treatment. I. Herzogii, another fine stove species, is, I am afraid, now lost to cultivation; if not, I should be pleased to hear of it; this species is one of the parents of the beautiful hybrid I. kewensis.

DARWINIA.

DARWINIA (syns. Genetyllis, Hedaroma and Polyzone) belongs to the Natural Order Myrtacaea and includes over twenty species, all native of Australia, although only two species are in cultivation, viz., D. macrostegia (syn. Genetyllis tulipifera) and D. Hookeriana. The former is the more showy species, the attractive part being the flower-like involucres which enclose the true flowers; they are pale yellow, streaked with red, like a broken Darwin Tulip; in D. Hookeriana the bracts are much smaller and dark red in colour.

Darwinias have generally been regarded as being difficult to cultivate and keep in health for any considerable length of time, but with cool house treatment and careful watering they are not more difficult than many other plants of this class.

They are propagated by means of cuttings of the smaller, twiggy, half-ripened shoots, dibbled into pots of sandy peat, and rooted under a bell-glass in a cool greenhouse.

D. Hookeriana is the easier of the two to root, the propagation of the other species being more difficult and uncertain.

The potting compost should consist of good fibrous peat and sand, with the addition of a little light loam, and the drainage should be perfect. Watering must be done carefully at all seasons. A good specimen of D. macrostegia has been in flower for several weeks in the conservatory at Kew. *J. Coutts.*

SPRING FROSTS.

LATE frosts have done considerable damage to crops this spring, nor is the danger yet past, for ground frosts have occurred up to the middle of June.

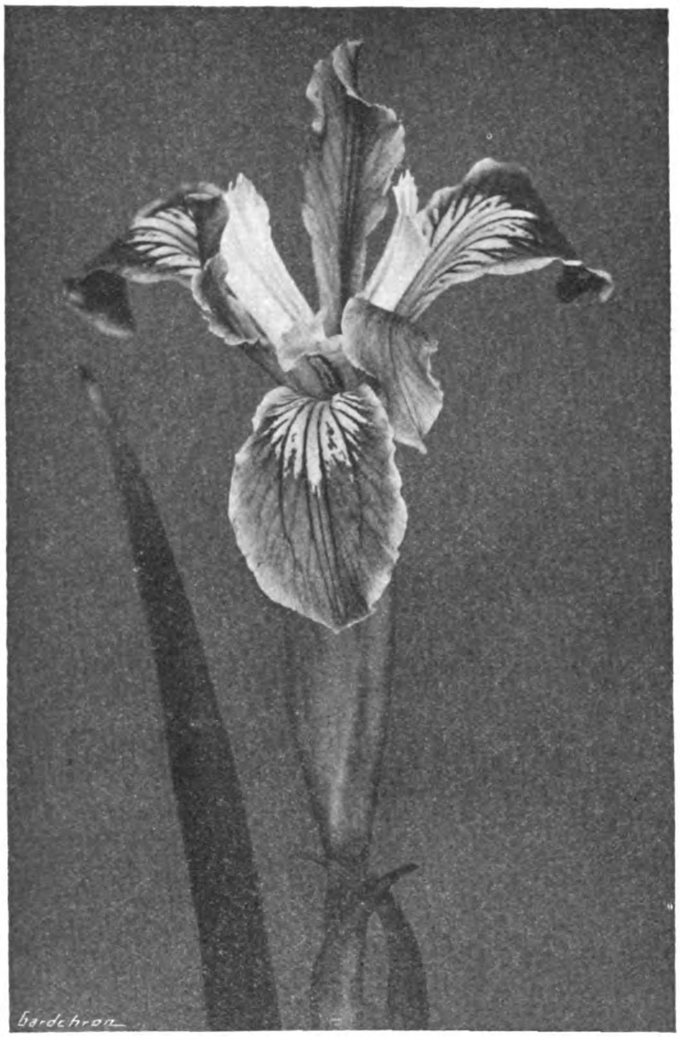


FIG. 207.—IRIS WATBRACT.

R.H.S. Award of Merit, May 25. A hybrid from I. Watsonii and I. bracteata. Flowers purple veined with violet.

Shown by Mr. Amos Perry (see p. 388).

Three causes bring about the late spring frost. The first is the ordinary wintry weather which often comes in spring; the second is the changing of the air supply following shallow depressions coming in April; a warm south-westerly current is replaced by one of polar origin drawn from the north-west or north. The only way to anticipate this change is to watch the fluctuations of pressure as indicated by the barometer, for a rising glass following a falling one often leads to the advent of a cold air current; the third is a calm, clear night following a warm, sunny day. After sunset, the earth rapidly loses its heat to the clear sky, and as radiation goes on unchecked the air in contact with the earth becomes as chilly as the ground itself. The temperature soon drops below freezing point, and as young plants have little or no protective sugar in their tissues, they are easily killed.

In valleys, the situation is more acute than on high ground. Air in contact with the valley sides becomes cool as radiation on a clear night goes on, and as cooling makes it heavier than the air above, it trickles down and forms a lake-like sheet of cold air in the valley bottom below. Hence, it happens frequently that young herbage in a valley is killed whilst that on the higher slopes escapes unhurt.

To minimise the injury resulting from these frosts, scientists have turned their attention to the prevention of loss of heat from the ground at night. Sprinkling or spraying gardens and orchards with water on a fine spring evening was formerly advocated, but experience has shown that young plants saturated with moisture fall easy victims to a late frost. The underlying idea of this process is to create a mist by premature cooling, and thus prevent radiation to a clear, night sky. In some parts, heaps of damp straw are set alight in order to create a smoke screen over the ground. In America advantage is taken of the fact that very cold air is often shallow, and tall oil burners are employed to heat the layers of air above and prevent ground cooling.

But the easiest way of anticipating ground frosts is to read the forecasts published in the Press. *J. Somerville, Air Ministry, Meteorological Office, Renfrew.*

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER, 5, Tavistock Street, Covent Garden, W.C. 2.

Letters for Publication *as well as specimens of plants for naming, should be addressed to the* **EDITORS, 5, Tavistock Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Illustrations.—*The Editors will be glad to receive and to select photographs or drawings suitable for reproduction, of gardens, or of remarkable flowers, trees, etc., but they cannot be responsible for loss or injury.*

Special Notice to Correspondents.—*The Editors do not undertake to pay for any contributions or illustrations. or to return unused communications or illustrations. unless by special arrangement. The Editors do not hold themselves responsible for any opinions expressed by their correspondents.*

Local News.—*Correspondents will greatly oblige by sending to the Editors early intelligence of local events likely to be of interest to our readers.*

Editors and Publisher.—*Our correspondents would obviate delay in obtaining answers to their communications, and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all letters relating to financial matters and to advertisements should be addressed to the* PUBLISHER; *and that all communications intended for publication or referring to the literary department, and all plants to be named should be directed to the* EDITORS. *The two departments, Publishing and Editorial, are distinct, and much unnecessary delay and confusion arise when letters are misdirected.*

Newspapers.—*Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editors to see.*

Urgent Communications.—*If sent by telegraph, these should be addressed "Gard. Chron.," Rand; or by telephone, to Gerrard, 1543.*

GARDEN EXPENSES.

ALTHOUGH expenses, or as they are sometimes termed, "costings," loom so largely in the economics of all important industries, there is a difficulty in dealing with them systematically in connection with private gardens. A little consideration will show the reason for this. The size and character of private gardens vary between such wide limits that classification is well-nigh impossible. Further, expenditure, particularly in the smaller type of garden, will depend to a large extent on the amount of personal energy expended by the owner and members of his family. But the greatest difficulty arises in the appraisement of the products. A market valuation may be placed on vegetables and some fruits, although a gardener will not care to compare in terms of pounds, shillings and pence the crisp salad or the freshly-plucked Strawberries with the wilted or crushed deliveries from the shops. But of gardening amenities in general—flowers, shrubs, lawns, scenic effects, landscapes—no one even attempts to place any sort of definite valuation on these, and no profit and loss account takes them into consideration. This indefiniteness on the credit side of the gardening account makes it impossible to strike a balance in figures, hence it is not surprising to find a certain looseness of ideas about expenditure and returns in gardens.

Although there must be astonishing variations in the relation between expenditure and results when various types of gardens of similar size and character are compared, it is the aim of this article to indicate some of the principles which should govern expenditure in the garden, in the hope that the practical result will be to show the way to certain economies, either by diminishing expenses or by increasing production.

Expenses may be conveniently considered under the two heads of capital and current expenditure, although the division is not definite, and certain expenses may be classed under either heading, according to circumstances. Capital expenditure will apply mainly either to new gardens or to those where changes of a revolutionary character have been decided upon. Items that come under this heading are the draining and trenching of the soil, the altering of slope or contour, building terraces, creating undulating surfaces, making rock-gardens, the planting of permanent trees and shrubs, the making of garden paths and roads, the laying down of permanent lawns, the erection of glasshouses and frames with their heating accommodation, and the purchase of the larger and more permanent type of tools.

Much expense will be saved if the owner has a definite preconceived notion of his requirements. In the early stages of planning a new garden or reorganising an existing one, it is necessary not only to decide what it is proposed to do, but to estimate the cost involved. Judgment and a sense of proportion are necessary, or money may be frittered away in schemes which cannot be completed. It is important to place essentials first. Among those things which it is more economical to complete before laying out the garden are draining, double-digging or trenching, and the disturbance of existing surfaces. The question of draining must be decided by reference to the facts of each individual case. Artificial drainage is superfluous on soils with a gravel subsoil and on certain sandy soils, but is necessary on heavy clays and on any soil where the vegetation indicates sourness or stagnation. The depth of the drains must be adjusted to the contour of the surface and the position of the outflow. The minimum depth should be arranged to correspond with the proposed depth of cultivation, that is to say, it is of little value to trench the soil below the depth of artificial drainage. On many soils drainage and double-digging must be considered together, and they probably influence the final result to a far greater extent than is usually imagined. The result of a well-drained, deeply-dug soil is a widely-distributed and deeply-laid rooting-medium, which will not only supply means for the plant to assimilate its nourishment and grow at a greater rate, but will also enable it to withstand long periods of drought. As regards trenching, it will be more ecomonical for several reasons to perform the operation before a garden is laid out. With regard to alterations of surfaces, every advantage should be taken of the natural contour of the land, and, of course, any change effected must have regard to the points of the compass. In these days of comparatively highly-paid, unskilled labour, the growing distaste for hard, physical work and the absence of any definite mechanical invention for the purpose, the removal of large volumes of earth must necessarily be expensive. The desired effect can often be obtained by a careful choice of subjects, and arranging them according to their characteristics of growth. The point to emphasise here is that any alteration of surface that is decided on should be arranged to harmonise with or increase the effect of any subject it is proposed to plant. In choosing the kind of shrub or tree for ornamental purposes, regard should be paid to the locality and the site, as well as the particular scheme in view. Many more or less tender shrubs give excellent effects, and with recent mild winters, one might be tempted to risk planting them. This is, however, very risky, especially in exposed situations or northerly latitudes. What has to be considered is the effect on the whole scheme ten years or so hence, if one or more subject is killed by frost. Weather conditions in the past have varied in cycles of years, and on this basis the fact that we have had a number of mild winters is an argument in favour of expecting a succession of cold winters in the immediate future. Certain classes of shrubs also favour certain localities, and enquiry should be made on this point. There is no room for experiment when the success or failure of a particular subject may make or mar the scheme.

It is economical to buy from firms of established reputation, who are able to guarantee the trueness to type and vitality of each specimen ; the difference in price between the relia
and the unreliable is relatively small
pared with the disturbance caused by failure
one or more specimens. The sites should
chosen and the ground prepared so that the
may be planted immediately they are recei
Planting should never be done when cold wi
prevail, for trees whose roots have been exposed for some time to keen drying winds, such as is often experienced in March, suffer a check to their vitality from which they never recover.

The forming and upkeep of lawns make items of heavy expenditure in gardens, yet nothing adds more to the beauty and charm of a place or facilitates the enjoyment of it. The cost of turfing on a large scale is prohibitive, but good lawns may be made by the use of grass seed. The most important factor in preparing the ground for seeding is to ensure uniformity of work throughout. If the soil is then brought to a firm, even surface by means of surface-cultivation, there will be no danger of inconvenient subsidences which are so troublesome to put right when the sward is established.

The number of glasshouses to be provided is a question that, with many gardens, may conveniently be left to a later stage, and the consideration of funds available, provided sufficient room be left for any expansion that may be necessary, and the heating apparatus arranged accordingly. Since the war, the costliness of the erection and maintenance of glasshouses has resulted in garden owners dispensing with them whenever possible.

There are two distinct aspects of glass. In the first place, it is a permanent home or conservatory for the growth and display of exotic plants, or a means of obtaining a supply of fruits, flowers and vegetables out of season. Secondly, it is a propagating department to supply the needs of the whole garden. A conservatory may be regarded as a luxury, and it is purely a matter of individual taste and funds available whether erections for this purpose shall be made. The provision of glass for growing such crops as Tomatos, Cucumbers, Grapes, etc., has a more commercial aspect, and may be decided by answering the question "Will it be worth while?" But glass structures for propagation are essential in gardens of any considerable size, and as a means of raising plants they may be regarded as an economy and not an expense. Frames are especially useful and should be found even in gardens of the smallest size. With a small amount of glass and a few frames, it is astonishing what a variety of plants can be raised successfully.

Coming from the abstract to the concrete, it may be interesting to attempt the description and estimate the cost of laying out grounds say, of approximately five acres. Included in the cost of laying out a garden will be the making of drives for approaching the dwelling-house and its connection with the garage. This entails considerable expense, as the construction must be substantial and the forecourt spacious. If one supposes that a new house has been built to stand in grounds of five acres, and the whole area is to be laid out as an attractive garden, one would have to construct a circular drive of about 250 feet, with a width of ten feet, and widening into a forecourt of forty or fifty feet in front of the house ; if an additional drive of one hundred feet is constructed to connect with the garage, the total area to furnish with foundation and surface with gravel would be not less than four thousand superficial feet. The area on the front side of the house would probably be about one-and-a-half acres, and this area, after drives had been constructed.
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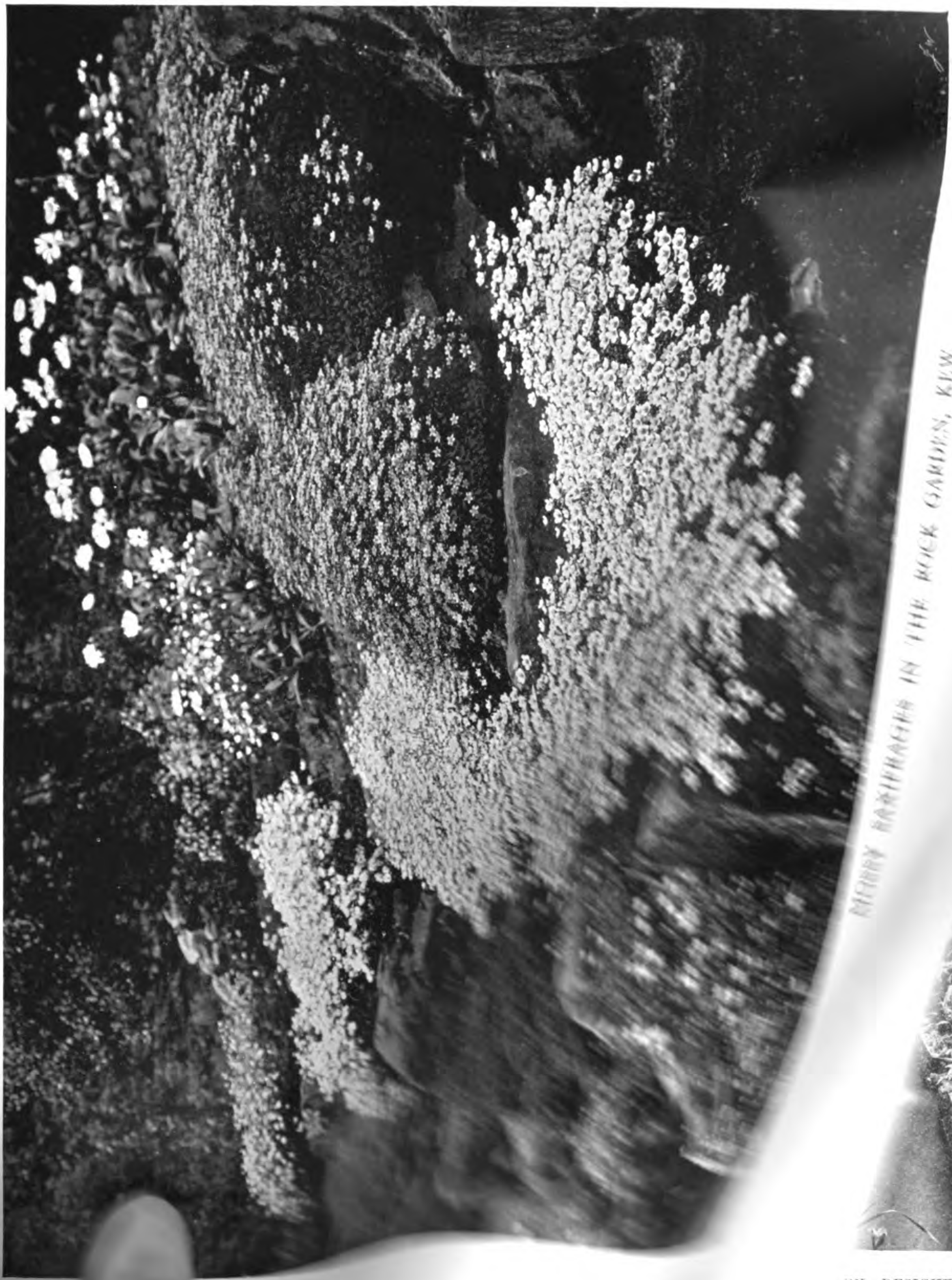

Photo C. P. Raffill

MOSSY SAXIFRAGES IN THE ROCK GARDEN, KEW.

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modified to meet the needs of various proprietors a sum of at least £500 would be necessary with prices at present levels. Such a garden could hardly be complete without some glass structures, and the erection of, say, a fifty feet by twelve feet span house in two divisions with accompanying pits and frames, would cost a further £500, thus making the total capital outlay £1,000.

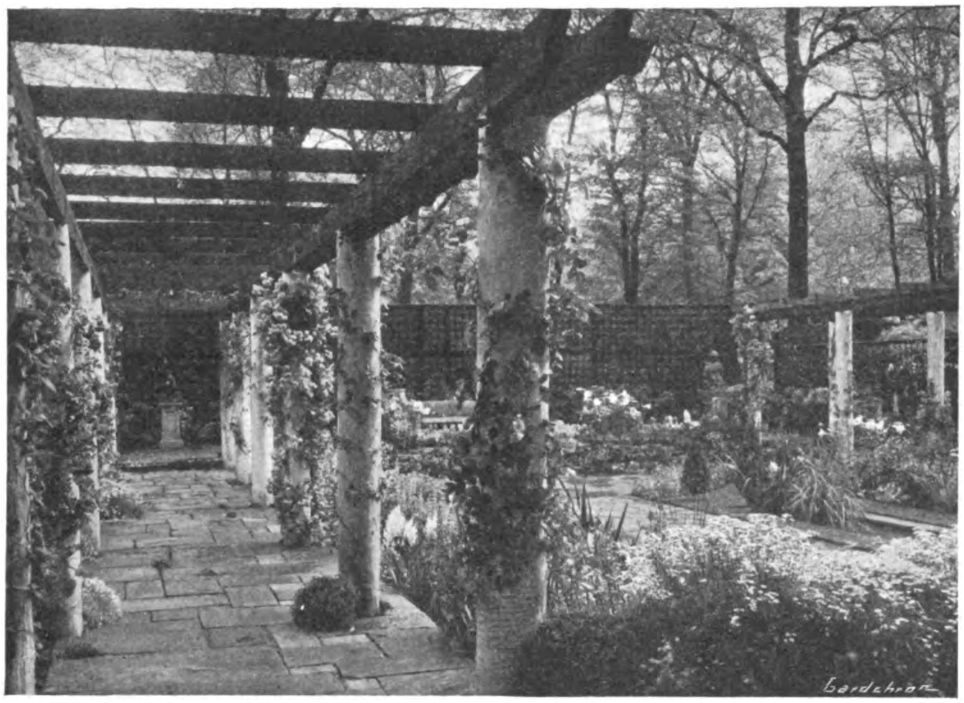

FIG. 208.—CHELSEA SHOW: FORMAL GARDEN BY MESSRS. VERNON BROS.
(see p. 392.)

Turning now to the consideration of the upkeep of gardens, it may be stated that the general principles already considered apply, but usually the penalty for the neglect of wise economy is more immediate and less severe than those exacted for mistakes in laying the foundations. For example, the result of buying a tree or shrub not true to type may not be disclosed for years, but bad seeds generally give evidence of their faults within a season. Hence, there is more scope for experiment, but the warning must be given that amateur experiments are likely to be costly and disappointing.

The cost of upkeep will depend to some extent upon the thoroughness with which the initial preparation has been done. Under certain conditions, capital saved in initial outlay may be spent many times over in upkeep. It applies in particular to the use of garden tools and appliances, and although this has been classed as a capital expense, it is probably more often regarded as part of current expenses. Gardening papers teem with advertisements for labour-saving devices, and it would require a small fortune to provide them all, further, in a small garden many appliances would be lying idle to such an extent that purchase would not be economical. The desirability of using every possible means of saving labour and of improving the quantity and the quality of the crop by employing the latest scientific developments cannot be too strongly stressed.

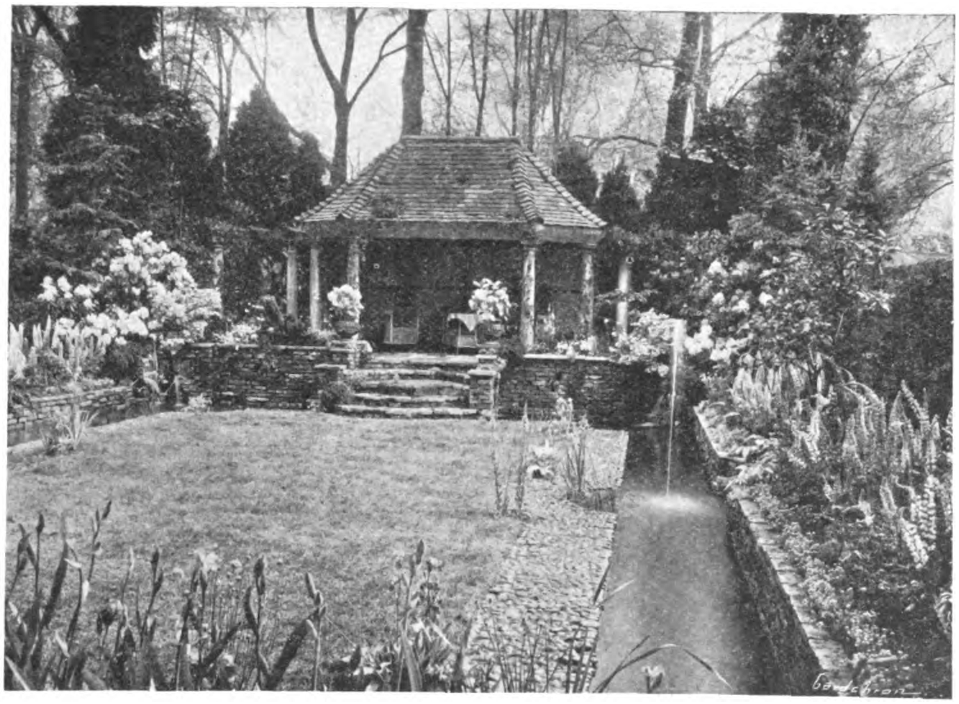

FIG. 209.—CHELSEA SHOW: "MOAT" GARDEN DESIGNED BY MESSRS. W. H. GAZE AND SONS, LTD.
(see p. 392.)

Reference has already been made to the propagation of plants at home. This may be emphasised as one of the most fruitful sources of economy in modern gardens. It is surprising what sums are spent on buying plants which could easily be raised from seeds, and, apart from economy, plant-raising is one of the true joys of gardening. Most herbaceous perennials flower the first year after seed-sowing, many of them even in the same year that they are sown, and they grow with remarkable vigour. Some amateurs have borders full of delightful flowers at very little cost, while it is not impossible to find much more pretentious borders on which money has been lavished that are lacking in charm and beauty. The limited outlay of one may result in just as charming an effect as the excessive expenditure of another, provided it is dispensed with knowledge and discretion. Costly novelties are often lauded to an unjustifiable extent, yet they frequently fail to produce such satisfactory results as older plants, whose worth has been proved by long years of cultivation.

The question of manures calls for remark. Much money is wasted in purchasing much-advertised patent manures, when even a superficial knowledge of chemistry and an examination of the analysis which has now to be given would indicate the true value. This is frequently not greater than that of vegetable refuse so readily consigned to the bonfire. The subject of the garden bonfire and the waste through incineration of valuable organic refuse capable of being turned into a substitute for farmyard manure, has been dealt with so many times that further reference to it may be deemed unnecessary, but an article on garden economics would be incomplete without it.

The question of labour is also strictly relevant to the subject. The gardening profession is not, as a rule, well paid, and any economy by lowering the wages of the gardener is not to be thought of. But it is probable that the adoption by gardeners of more up-to-date methods and the utilisation of all the improvements rendered available by modern science, would so increase the productivity and reduce the cost of gardens, that the way would be paved for an improved standard of wages.

Many of the decisions on questions arising out of the planning and upkeep of gardens can only be made by experts, and the expert has too limited a scope as the factotum of a private individual. Further, past conditions of employment of gardeners have tended to a condition of mental and physical servitude and social ostracism which is utterly indefensible. There is no reason why a man who devotes his life and energies to the propagation and care of plants should be regarded as an inferior being just because his services are devoted to an individual, yet such undoubtedly is the case. Raising the status of the gardener is likely to attract a better type of man to gardening as a profession. Without some such inducement it seems that the effect of modern educational facilities which, rightly or wrongly, creates a distaste for inferior social positions and subservient relationship, will cause a famine in the type of man necessary to achieve success, and this will be one of the most serious obstacles to economical gardening. *W. Auton, Pyrford Court Gardens, Woking, Surrey.*

NOTICES OF BOOKS.

Life of Plants.*

THE title of this book is significant. The discriminating reader will expect much, nor will he be disappointed, for it embodies a vivid presentation of the plant as a working mechanism of marvellous dynamical complexity, and while of necessity treating these difficult matters with a light touch, its author has succeeded to a remarkable degree in explaining clearly what the plant does, and how it does it. The whole is written in a style at once attractive and arresting—such as readers of this journal might naturally expect from Sir Frederick Keeble. It is just the book that has long been wanted; everyone interested in the mysteries and intricacies of plant life must get it; and it is safe to prophesy that when once opened it will be read from cover to cover.

The author has shown a genius for picking out the really big things—and the varied subjects are so cunningly and suggestively treated that everyone, whatever his knowledge, will assuredly find both food for reflection and matter for delight. We have not come across any botanical work of the kind wherein art and science are to be found in such brilliant consorting—more the pity—and there is not a dull page in it. Some at least of the unquestionable charm of the work is to be attributed to the skill wherewith the things described and discussed are given their true values. As in a Rembrandt's picture, attention is ever focussed on the main features, and is undisturbed by an introduction of relatively subsidiary details that so often, especially in scientific writings, tend to distract the mind from the main issues. Such details, interesting enough to the learned reader, but in themselves of secondary importance are either omitted or else but allusively indicated, and the reader must indeed be a dullard if he cannot grasp the beauty and significance of the main theme.

Of course, no one who could write a book of this quality may expect entire immunity from criticism, and some will peradventure think its author has lent too favourable an ear to those who have seen in an imaginary transmigration of relatively advanced marine plants of the land a sufficient explanation of the origin of a land flora in its early evolutionary development. Here and there, too, the critical reader may come across statements which perhaps he will judge to be deserving of reconsideration at the hands of the author. But there are, after all, but small spots on a very fine piece of work.

It is not necessary, and certainly no attempt will be made, to analyse closely Sir Frederick Keeble's admirable picture of the plant and its adjustments to its varied environments, the manner of the getting and of the using of its food, or the marvellous and complex workings of that chemical and physical machinery which accounts for its existence and constitutes its life. All this is better done at first hand by reading the book itself. But just a word of welcome perhaps may be here accorded to the really excellent treatment of the mechanism of heredity and the results of Mendelism. The author has himself worked with distinction in this field, and thus in his book he succeeds in lighting up some of the dark and difficult paths that must ineluctably be essayed by everyone who would learn something though ever so little of the problems of heredity and the fundamental secrets of life. *J. B. Farmer.*

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* *Life of Plants*, by Sir Frederick Keeble, Professor of Botany in the University of Oxford. Oxford, at the Clarendon Press. 1926. Price 5s.

MESEMBRYANTHEMUM.

(*Continued from p.* 308.)

8.—CHEIRIDOPSIS, N. E. BR.

DWARF, succulent perennials, forming clumps. Leaves opposite, in nature only 1–2 pairs to a growth, but under cultivation up to 3 pairs are sometimes present at the same time, the alternating pairs often dissimilar in size, form, or degree of union at the base, one pair being only shortly united at the base, and the next pair united from one-third to three-fourths or, in a few species, for nearly all their length, withering, and the basal part forming during the resting period a truncate sheath surrounding the next pair of leaves, or, in a few species, completely enclosing the new pair, which usually have their flat faces closely applied to one another, so that the pair somewhat resembles the beak of a bird; green, glaucous-green or white, often conspicuously dotted, sometimes without dots.

Flower solitary, terminal, usually with only one pair of leaves at the base of the pedicel, but sometimes also bearing another pair at or below its middle. Calyx 4–5-lobed down to its union with the ovary. Petals numerous, free. Stamens numerous, erect or more or less connivent. Stigmas 8–19 (in one doubtful species the stigmas and the valves and cells of the capsule are only 4–6), more or less plumose; no style. Ovary partly superior, becoming inferior in fruit, 8–19-celled; placentas on the outer wall or floor of the cells (Fig. 210). Capsule with 8–19 valves and cells (except in the doubtful C. ventricosa); valves narrow, widely spreading or reflexed when wetted; expanding-keels diverging upwards from the base or contiguous at the basal part and then diverging, with membranous, awn-like or linear points, usually without marginal wings, but sometimes with narrow marginal wings at the basal half; cells roofed with cell-wings and the opening nearly closed by a large tubercle.

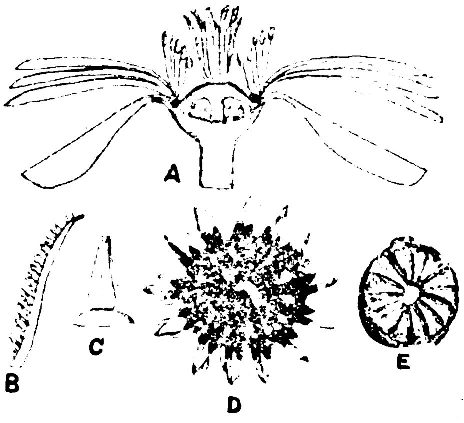

FIG. 210.—CHEIRIDOPSIS.

A., diagram of flower structure; B., one of the stigmas, much enlarged; C., the stigmas before maturity closed together in a cone; all from C. tuberculata. D.–E., fruit, open and closed, of C. candidissima: natural size.

Species 25 (and one that doubtfully belongs to the genus), and probably several more, natives of the Karoo region of South Africa, from Great Namaqualand southwards to Laingsburgh Division. The type of the genus is C. tuberculata, N. E. Br.

The generic name is derived from the Greek, *cheiris*, a sleeve, and *opsis*, like, in allusion to the truncate, withered sheath, which in many species (not all) when the plant is at rest under natural conditions surrounds the succeeding pair of leaves like a sleeve.

This genus corresponds with the section Rostrata of Mesembryanthemum, in books, but is distinguishable at sight from that genus by its peculiar habit, by its more numerous stigmas, and particularly by the structure of its capsule, which, when expanded, is a very pretty, flower-like object, from which alone this genus can usually be recognised.

It is remarkable for the manner in which some of the species show great variation in the vegetative characters of the same individual at different stages of growth. A common variation being that alternating pairs of leaves differ either in the length to which they are united, one pair being very shortly united or nearly free at the base, and the next pair united, sometimes for half or even more than half their length, into a solid-looking body that ultimately becomes a sheath to the next pair; or one pair is entire and the next pair toothed on the keel at the apex. In some species the variation is so great that the same individual seen only at two different periods of the year would certainly be thought to represent two different species, as will be shown in the figures of C. peculiaris and C. cigarettifera. It seems, however, that the peculiar appearance assumed during the resting season in their native country by some of the species is not, or but rarely, repeated in Europe under cultivation, probably because they receive too much water during the summer, while under natural conditions they get no rain during their resting period, the only moisture they then obtain being the slight amount obtained from dew, which would soon be evaporated by the hot sunshine.

I have sometimes been astonished at the enormous amount of shrinkage the leaves of some species of this genus will endure without any apparent ill effect. 211A represents a growth of C. candidissima in a state of rest, as it was when received by me from South Africa. The leaves then appeared to me to be little less than their full size as the wrinkles upon them were scarcely noticeable, yet when the plant rooted the leaves at once began to swell and elongate and speedily attained the size represented by Fig. 211B. It was evident that this was merely expansion from the absorption of water and not real growth, which takes place much more slowly and in a different manner. Therefore, it would appear that the tissues of these plants are of a somewhat elastic nature.

Members of this genus, as a rule, do not flower freely under cultivation in England, because they grow and flower during our cold season, from December to April, and to enable them to do so they probably require plenty of sunshine and a day temperature of not less than 68° to 70° Fahr., as I have noticed that the flowers do not expand properly when the temperature is lower.

Unfortunately, I have not seen many flowers belonging to this genus, and until this year had not noticed a peculiarity that seems to exist in reference to the fertilisation of certain species of this genus, which is this. The stamens shed their pollen before the stigmas are ready for fertilisation, being tightly closed together into a spire-like column while the pollen is being shed. This, of course, is a well-known feature in plant-fertilisation, its purpose being to secure cross-fertilisation. But in those flowers of Cheiridopsis tuberculata and C. rostrata that I have seen this year, when the pollen is all shed then the stigmas commence to separate and at the same time, or in one case just before the stigmas began to separate, the petals begin to wither and are quite faded while the stigmas seem to be quite fresh and receptive, a peculiarity I have not noticed in other flowers, yet in some species the stigmas are radiately spreading while the petals are in a perfectly fresh condition. The pollen seems all to fall among the stamens and is seen to be plentifully covering their filaments; therefore, I suspect that these plants are fertilised by very small insects and mites, which probably crawl through the mass of stamens to get to the nectar-glands, and thus convey pollen from flower to flower.

The presence of a pair of leaves (the so-called bracts) upon the pedicel above the basal pair has been thought to be a specific character, but I find on a plant of C. tuberculata, cultivated by Mr. Endean, some flowers are produced with and some without the extra pair of leaves on their pedicels on different growths of the same plant and growing in the same pot! Therefore, the specific value of the presence of this pair of leaves is doubtful. I have preserved specimens showing this variation for the Kew Herbarium.

I am unable to make a key to the species of Cheiridopsis, because I have no material adequate for the purpose. Therefore I can only give a list of the species I refer to this genus, giving references to the original descriptions and any subsequent figures, the descriptions of later authors being omitted, as they are often imperfect or erroneous:—

C. bibracteata, N. E. Br.—Mesembryanthemum bibracteatum, Haw. *Syn. Pl. Succ.*, p. 213 (1812), N. E. Br. in *Journ. Linn. Soc. Bot.*, vol. XLV, p. 77, t. 6, fig. 14: and M. rostratum var. brevibracteatum, Salm Dyck, *Mesemb.* §3, fig. 7B.

C. bifida, N. E. Br.—Mesembryanthemum bifidum, Haw. *Misc. Nat.*, p. 29 (1803), N. E. Br. in *Journ. Linn. Soc. Bot.*, vol. XLV, p. 78, t. 9, figs. 34, 35; and M. multipunctatum, Salm. Dyck, *Hort. Dyck.*, p. 357 (1834), and *Mesemb.* §3, fig. 6; Berger, *Mesemb.*, p. 256, fig. 55, IV.

C. candidissima, N. E. Br. (Fig. 211).—Mesembryanthemum denticulatum var. candidissimum, Haw. *Obs. Mesemb.*, p. 151 (1795): *Ann. S. Afr. Mus.*, vol. IX, p. 142, t. 3, and M. candidissimum, N. E. Br. in *Journ. Linn. Soc. Bot.*, vol. XLV, p. 79, t. 7, figs. 25, 26. My figure at this place represents only a small, starved plant, as I find this species attains to two or three times the dimensions there depicted, as is represented in Fig. 211 B.

C. carnea, N. E. Br.—Described later.

C. Caroli-Schmidtii. N. E. Br.—Described, figured and synonymy given later.

C. cigarettifera, N. E. Br.—Described and synonymy given later.

C. cuprea, N. E. Br.—Described later.

C. denticulata, N. E. Br. and var. **glauca, N. E. Br.**—Mesembryanthemum denticulatum and var. glaucum, Haw. *Obs. Mesemb.*, p. 150, 151 (1795), and N. E. Br. in *Journ. Linn. Soc. Bot.*, vol. XLV, p. 80, t. 9, fig. 33.

C. difformis, N. E. Br.—Mesembryanthemum difforme, Thunb. *Prod.*, p. 90 (1800), N. E. Br. in *Bothalia*, vol. I, p. 153 (June 1923, wrongly dated 1922!) not of Linné; and M. exiguum, N. E. Br. in *Journ. Linn. Soc. Bot.*, vol. XLV, p. 102 (1920). As M. difforme, Thunb. and M. difforme Linné are now each referred to a different genus, both names may be retained, the former here, the latter being a species of Glottiphyllum. When in its resting condition C. difformis, as represented by the type specimen in Thunberg's herbarium, much resembles C. cigarettifera when also in its natural resting stage, but comes from a different locality, and is probably very distinct when in a flowering condition.

C. inconspicua, N. E. Br.—Described and figured later.

C. inspersa, N. E. Br.—Mesembryanthemum inspersum, N. E. Br., in *Journ. Linn. Soc. Bot.*, vol. XLV, p. 81, t. 6, figs. 19, 20 (1920). In this species in spring all the basal or united part of the growths become of a rich and pleasing purple colour, in the same way that C. purpurascens does, but it is a more slender plant than the latter species.

C. lecta, N. E. Br.—Mesembryanthemum lectum, N. E. Br., in *Journ. Linn. Soc. Bot.*, vol. XLV, p. 82, t. 9, fig. 36 (1920).

C. Marlothii, N. E. Br.—Described and figured later.

C. Meyeri, N. E. Br.—Described and figured later.

C. parvula, N. E. Br.—Mesembryanthemum parvulum, Schlechter in *Engl. Bot. Jahrb.*, vol. XXVII, p. 129.

C. Pearsonii, N. E. Br.—Described later.

C. peculiaris, N. E. Br.—Described and figured later.

C. pressa, N. E. Br.—Mesembryanthemum pressum, N. E. Br. in *Journ. Linn. Soc. Bot.*, vol. XLV, p. 82, t. 10, fig. 46 (1920).

C. purpurascens, N. E. Br.—Mesembryanthemum purpurascens, Salm Dyck, *Obs. Bot.*, p. 28 (1822), and N. E. Br. in *Journ. Linn. Soc. Bot.*, vol. XLV, p. 83, t. 8, fig. 28. The basal part of this species becomes suffused with purple, as in C. inspersa, but it is a much more robust species than the latter.

C. robusta, N. E. Br.—Mesembryanthemum robustum, Haw. *Misc. Nat.*, p. 28 (1803), and N. E. Br. in *Journ. Linn. Soc. Bot.*, vol. XLV, p. 84, t. 9, fig. 37.

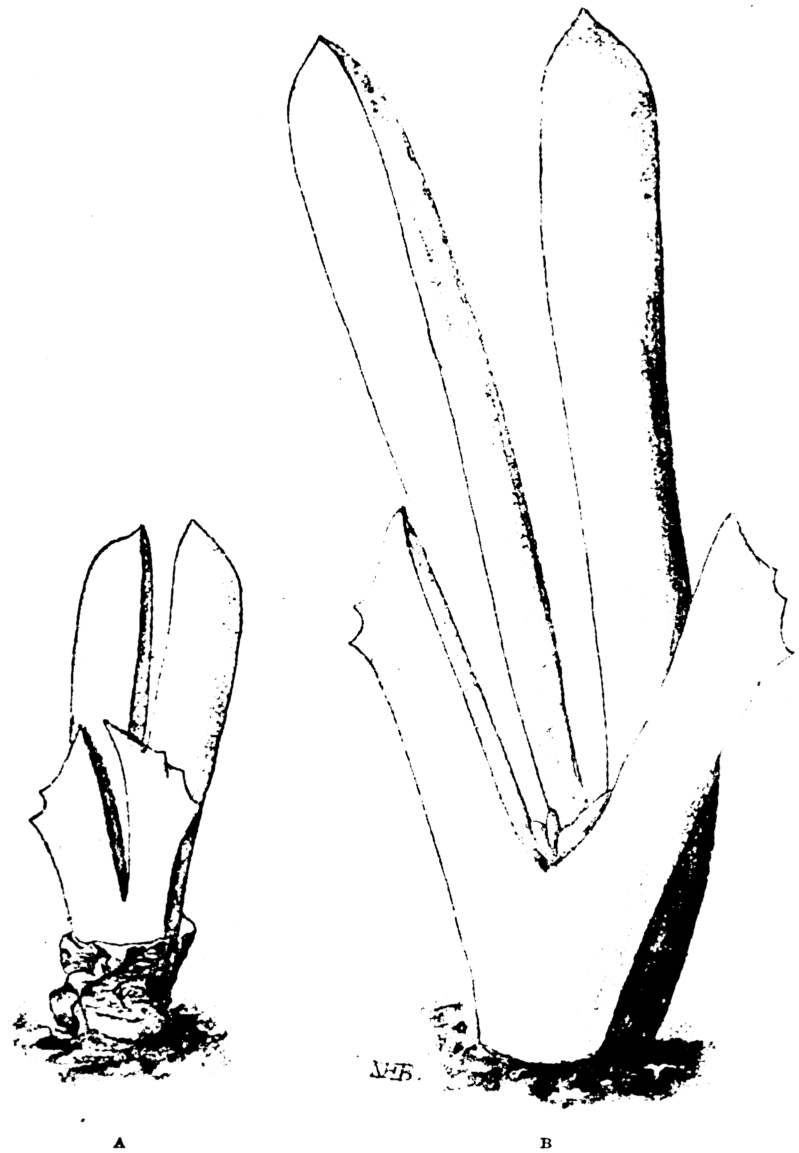

FIG. 211.—CHEIRIDOPSIS CANDIDISSIMA, N. E. BR.

Showing the same two growths, A., as they appeared when received on June 19, 1924, and B., as they were on July 26, 1924, after they had rooted and swollen to their normal size. Surface white, dotless. Both actual size.

C. Roodiae, N. E. Br.—Described and figured later.

C. rostrata, N. E. Br.—Described and synonymy given later.

C. rostratoides, Haw. *Obs. Mesemb.*, p. 154 (1795), N. E. Br., in *Journ. Linn. Soc. Bot.*, vol. XLV, p. 85, t. 7, fig. 27.—M. ramulosum, Haw. *Misc. Nat.*, p. 89 (1803).

C. tuberculata, N. E. Br.—Described and synonymy given later.

C. ventricosa, N. E. Br.—A doubtful species. Described and the synonymy given later. *N. E. Brown.*

(*To be continued.*)

HOME CORRESPONDENCE.

Fruit-drop and the Lime-sulphur Wash.—In an article by Messrs. N. H. Grubb and R. G. Hatton, in this Journal,* reference is made to statements of ours on the subject of the control of Apple Scab.† We would like to make the following observations with regard to some of the points raised by these writers. We, with Messrs. Grubb and Hatton, hope that growers will not be misled into thinking that little or no fruit-drop following a post-blossom spray of lime-sulphur observed in one season, disposes of the reputed danger in the use of that spray. In the article to which attention has been called, we also record the fact that Bordeaux mixture caused very severe defoliation; this is another example of a phenomenon noticed in that one season and not in former years, and we trust that by recording the fact we are not misleading growers into thinking that Bordeaux mixture invariably has this harmful effect. Messrs. Grubb and Hatton write:

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* Vol. LXXIX., p. 324.

† In *Journ. Min. Agric*, April, 1926.

"The reason why the fruit-dropping was not shown . . . . is also easily explained." We must assert again that we are confident that no appreciable drop took place as the result of the use of any of the sprays. It is possible that a misconception has arisen owing to the words used in recording one of our observations. Let us briefly recapitulate the main facts. It was observed that the Apples on the tree on June 4 were three-eighths-of-an-inch in diameter, and over six weeks later, when the drops were picked up, the smallest Apples counted were three-eights-of-an-inch in diameter. Messrs. Grubb and Hatton state that shrinkage of fallen Apples must have taken place during this period of six weeks, and consequently some smaller fruits were left uncounted. There are no grounds for assuming, in the first place, that any drop whatever started on June 4, and although the suspicion that fruit-dropping occurs immediately after the earlier of two post-blossom sprayings with lime-sulphur may have been held by Messrs. Grubb and Hatton, a suspicion must not be allowed to become an assumption. Has it been forgotten that every tree was closely examined on June 23 (nineteen days from the application of the spray)? On that date, as stated in our article, a slight drop was noticed to be actually taking place (as judged by the loosening of half-inch Apples from the trusses, and by actual fall). That this drop was starting was noted on June 23 in the case of five of the eight trees in row 3, which were receiving lime-sulphur twice. It was also noted from all fourteen trees receiving Bordeaux three times and from five trees receiving Bordeaux twice. Had any serious drop occurred between June 4 and June 23, it would certainly have been noticed. Twenty-seven days later (July 20) the drops were counted, the operation being described as follows: "All Apples measuring from three-eighths of-an-inch to about one-and-a-half inch in diameter, found on the ground under each tree, were counted . . . ." This sentence is possibly ambiguous, as it might be assumed to mean that there were fallen Apples, of a smaller size, which were not counted. Such was not the case. If the wrong meaning has been extracted from our sentence, a misconception may easily have arisen which afforded Messrs. Grubb and Hatton grounds for suspecting and explaining a fruit-drop which in fact did not take place. *W. Goodwin, E. S. Salmon and W. M. Ware, South Eastern Agricultural College, Wye, Kent.*

Hydrocyanic Gas as a Fungicide.—Numbers of cases have been recently reported to me where hydrocyanic acid gas, generated either from sodium cyanide or cyanogas calcium cyanide is alleged to check such fungous diseases as Rose mildew. It would be interesting to know if any readers of *The Gardeners' Chronicle* have made similar observations. This gas is considered to be purely insecticidal, but if there is any foundation in the reports received, it would appear that we have at last found a fungicidal vapour which can be applied as a commercial horticultural practice. The nearest approach to a fungicidal vapour is the vaporisation of sulphur by means of lamps or hot pipes. *Theodore Parker.*

Hardiness of Perpetual Carnations.—Having some surplus plants of Perpetual-flowering Carnations after the bulk of them had been potted in the spring of 1925, the supernumeraries were planted out in an ordinary flower bed in April without any further preparation of the soil. They gave an abundance of bloom until the wet autumn set in. Although without protection from the frosts and winds during the winter (including 29° of frost) they received no harm, and started growing again this spring; Monarch was the only one out of several varieties planted that looked at all sickly, but in a bed of Brompton Stocks next to them every plant was killed. *A. B. Wadds, Reading.*

Alum and Slugs.—Watering with a strong solution of alum was lately advocated for destroying slugs in the garden. Though it seemed unlikely that the essential contact of the salt with the slugs would occur, I watered twice over a patch of six yards by two yards with two-and-a-half gallons of half-saturated solution. Next afternoon six of my traps were put in, also some others to form a defence against the entrance of individuals from the rest of the border. On the three days up to November 2 last, slugs amounting to eighteen per square yard had been counted from the traps; frost then set in, but later still more were taken when the weather became mild. I concluded that it was not a paying proposition to expend fourpence in alum over every twelve square yards of my garden and leave at least a dozen and a half hearty slugs in every square yard! *H. E. D.*

Iris Susiana (see p. 376).—A week or so ago I saw some remarkably fine blooms of this Iris at Pirton Court, Worcester, and I very much question if finer blooms have ever been produced. The plants were growing in pots and had certainly amply repaid all the care and trouble bestowed on them. Viscount Deerhurst is an enthusiastic cultivator of Irises and Tulips, of which many thousands are grown at Pirton Court and produce brilliant displays in their respective seasons. *W. H. W. Croome.*

Frost and Insects.—It is quite true that, thanks to the customary stupidity of "the authorities," the slaughter of birds was encouraged during the war, and this, of course, accentuated the decimation to which H. J. Phillip refers (p. 361), and consequently encouraged the insects. It is also obvious that since there was a plague of insects, they managed to survive the two months freezing they endured. Can Mr. Phillip give us any evidence in support of his suggestion that mortality amongst them was enormous. *C. Nicholson.*

PUBLIC PARKS AND GARDENS.

ROCHESTER Town Council is applying to the Ministry of Health for sanction to borrow £900 for the purchase of a recreation ground at Frindsbury.

PAIGNTON Urban District Council is applying to the Ministry of Health for sanction to borrow £3,150 for improvements to pleasure grounds.

A REPRESENTATIVE meeting of Park Superintendents was held at Anderton's Hotel, Fleet Street, London, on May 25, for the purpose of forming an association of park superintendents.

Mr. W. W. Pettigrew, Manchester, was voted to the chair. In his introductory remarks, Mr. Pettigrew said that such an association had long been wanted in their profession, and had been advocated for many years in the gardening Press, but this was the first time a meeting of park superintendents had been held.

On the proposition of Mr. E. Matthews, Glasgow, seconded by Mr. R. J. Frogbrook, Leyton, the meeting resolved that an Association to be known as the "National Association of Park Superintendents" be formed.

The meeting then considered and approved the rules and regulations for the government of the association.

The following officers were elected:—President, Mr. W. W. Pettigrew, Manchester; Vice-Presidents, Mr. W. H. Morter, Birmingham, and Mr. E. Matthews, Glasgow; Executive Council, Mr. D. Bliss, Swansea; Mr. W. Besant, Harrogate; Mr. F. G. Cousins, Torquay; Mr. W. B. Clark, Aberdeen; Mr. J. S. Christie, Camberwell; Mr. W. Clark, Southport; Mr. W. Felsted, Bournemouth; Mr. J. J. Gutteridge, Liverpool; Mr. W. H. Johns, Bermondsey; Mr. B. H. MacLaren, Brighton; Mr. J. Richardson, Wigan and Mr. T. R. Trigg, Leeds. Mr. A. Blackburn, Blackpool, was appointed Secretary-Treasurer.

THE LLANDUDNO Urban District Council has been notified by the Ministry of Health that it is proposed to consider favourably an application for sanction to borrow £4,800 for a recreation ground at Craigydon.

SOCIETIES.

CHELSEA SHOW.

(Concluded from p. 394.)

Trees and Shrubs.

In the tents, hardy flowering and foliage trees and shrubs formed an important feature of the show. Rhododendrons and Azaleas, Clematis and Brooms were freely displayed in great beauty. In a corner group, Messrs. GEORGE JACKMAN AND SON arranged a very large group of magnificent Clematis in large pots. Their principal varieties were Crimson King, a beautiful bright red variety, shading to a paler tone in the middle of the flower; Comtesse de Bouchaud, a lovely satiny rose; Belle of Woking, double, silvery grey; Duke of Portland, pale flesh colour, with crimson bar in the centre; Duchess of Sutherland, bright red, shading to a lighter tone in the centre; Empress of India, light violet-purple, of deeper shade in the centre; King George V, light flesh-pink, with a bar of brighter pink in the middle of each petal; Lord Neville, dark plum-purple; Lady Northcliffe, deep lavender, shaded blue; Madame Edouard Andre, velvety-red; Marie Boisselot, white; Sir Garnet Wolseley, bluish bronze, with a bar of red; and Queen Alexandra, pale lavender.

Magnificent Rhododendrons were grouped by Messrs. WATERER, SONS AND CRISP. In the centre they had an immense bush of Pink Pearl, a handsome variety, which was also splendidly represented by smaller, though still large, bushes. Corona, Gomer Waterer, Mrs. F. C. Stirling and Lady Decies were also shown as large standards bearing big trusses of flowers. The dwarfer examples included Cynthia, lovely pink shades; Starfish, pink; Eileen and several beautiful seedlings.

A large and well-arranged bed, exhibited by Messrs. R. WALLACE AND CO., included well-flowered specimens of such Rhododendrons as White Pearl, of delicate blush colouring; Kate Waterer, pink with yellow spots on the upper segment; Helen Schiffner, white; Smirnovii, a pretty hybrid; Mrs. George Paul, a compact, blush-pink truss; and Corona. Messrs. M. KOSTER AND SONS included good plants of Schiller, blush-pink; and Mrs. Chas. Pearson, pale blush; Corry Koster, a pretty waved flower; Betty Wormald, pink; Gylla MacGregor, deep rose; Goethe, blush-mauve; and Raoul Millais, rose-pink, in their group of Rhododendrons.

A large group of well-flowered Rhododendrons arranged by Mr. T. LEWIS included Achievement, pink; Fred Waterer, Broughtonii and Doncaster, of red shades; Lady C. Mitford and Mrs. E. C. Stirling, soft pinks, and Pink Pearl. Mr. H. DEN OUDEN exhibited compact, well-flowered little bushes, chiefly of Rhododendron Mrs. Peter Ouden, which had been subjected to 32° of frost.

An immense collection of hardy Azaleas of vivid colouring was displayed by Messrs. R. AND J. CUTHBERT at the Embankment end of the large marquee. There were excellent standards of Azalea rustica Norma, A. coccinea speciosa, A. rustica fl. pl. Corneille, A. Daviesii, of soft yellow colour; A. Maxwellii, a hardy Japanese Azalea with large, deep, rose-coloured flowers; and A. ledifolia var. Noordtiana, bearing large white flowers. The KNAPP HILL NURSERY CO. showed an interesting collection of their seedling Azaleas, which were of considerable beauty.

Messrs. R. GILL AND SON showed, in a miscellaneous group of shrubs, young plants of Rhododendron sutchuense, R. sino-grande and R. barbatum var. Smithii, the foliage of which is particularly handsome. They also had trusses of R. Aucklandii × Fortunei, and R. Falconeri. The general shrubs included sprays of Embothrium coccineum and Olearia myrsinoides.

In a large group, the DONARD NURSERY CO. displayed many valuable and interesting trees and shrubs. We especially noted Ceanothus floribunda, Erica australis, Leptospermums of several attractive varieties, Enkianthus campanulatus, Tricuspidaria lanceolata, Embothrium coccineum and several attractive Brooms.

Enkianthus campanulatus was also well-shown by Mr. G. REUTHE, who had various Rhododendrons, with Magnolia parviflora, M. Watsonii, Vaccinium ovatum and Paeonia arborea Mme. Louis Henry.

Rhododendrons, particularly R. Pink Pearl, R. Abraham Dixon and R. Mrs. Milner, and hardy Azaleas were attractively grouped with Maples, Brooms and other shrubs by Messrs. J. CHEAL AND SONS. Brooms were shown in great numbers by Mr. R. C. NOTCUTT, whose chief examples were Cytisus Newry Seedling, C. albus roseus, C. Fairy, C. Donard Seedling, C. Moonlight, C. Cornish Cream and C. Scoparius Andreanus. Mr. NOTCUTT also showed various hardy Azaleas, Maples, Lilacs and Diervillas.

Flowering Cherries were the most prominent feature of a large group of hardy trees and shrubs well-arranged by Messrs. HILLIER AND SONS. These included Prunus serrulata Sekiyana, double pink, and P. Landsiana Sirstar, lovely pale pink; Picea hondoensis, bright rose-pink; young trees of P. asperata, bearing cones. Abies nobilis glauca, with brightly-coloured male cones, and a very shapely Picea albertiana conica were well represented. Flowering shrubs included Magnolia cordata, M. Watsonii and a good selection of Hydrangeas.

The sprays of Lilac shown by Mr. CHARLES TURNER, included Charles Joly, dark purple; Comte de Kerchove, pink; President Grevy, blush lilac, and Princess Clementine, white, of the double-flowered varieties; and Dr. Charles Jacobs, claret colour; Hugo Koster, reddish mauve, and Roi Albert, with single flowers.

A good collection of useful Conifers with well-coloured Japanese Maples, was arranged by Messrs. HOLLAMBYS', LTD., and the YOKOHAMA NURSERY CO. had an interesting collection of dwarfed Japanese trees, amongst which were well-flowered Azaleas and Wistarias.

Trees and Shrubs in the Open.

Out-of-doors, chiefly between the Embankment end of the marquees and the rock gardens, there were extensive collections of interesting trees and shrubs, including topiary examples. Messrs. R. AND G. CUTHBERT displayed their exhibit in the form of large beds of excellent Hydrangeas set in ample greensward and enclosed on two sides by long borders of their vividly coloured deciduous Azaleas, with taller specimens of Rhododendrons and Laburnums. These were the chief shrubs, but there were others, notably graceful, well-flowered Brooms, and at the apex of the large triangle they had a mass of the handsome Tritoma Prince of Orange.

On either side of one of the entrances to the marquees Messrs. C. CHARLTON AND SONS had extensive and varied collections of trees and shrubs which were very effectively grouped. Highly-coloured Japanese Maples were associated with goodly-sized bushes of Rhododendron Pink Pearl and other sorts. Azaleas, both of the Mollis and the Ghent types, were freely used and gave the needed bright floral colour, while grace was added by the many varieties of Cytisus. In addition to these well-known subjects there were examples of Acer platanoides, Prinx Handjery, Billardiera longiflora, Decaisnea Fargesii, Pomaderris apetala and a good batch of Kalmia latifolia.

An immense collection of the Japanese Maples they grow and show so well was contributed by Messrs. W. FROMOW AND SONS. They illustrated the great variety of leaf-form and colouring which is provided by these shrubs, and to mention only a few there were perfect specimens of Acer dissectum purpureum, of intense colour; A. palmatum laciniatum, combining elegance of form with good colouring; A. palmatum atropurpureum which was the the most highly coloured of them all; while the most difficult of the Japanese Maples, A. roseum marginatum, was represented by a splendid plant of delightful rosy colouring.

Many Conifers of value for the rock garden as well as general planting were displayed by Messrs. HOLLAMBYS', LTD., who had shapely specimens of Cupressus Lawsoniana Westermanii, Cedrus Deodara glauca, and well-coloured examples of Retinospora filifera aurea, Retinospora obtusa Crippsii aurea and Juniperus virginiana glauca.

In the Lime avenue, Messrs. L. R. RUSSELL, LTD., exhibited a large collection of trees and shrubs, of which their well-known Ivies and Vines were important items. Chief amongst the Vines were tall plants of Vitis Thunbergi, Vitis himalayana, Vitis Henryana, and Vitis Ciotat. They also included many Rhododendrons and Azaleas, Japanese Maples and other shrubs.

Topiary specimens were shown more extensively than usual, and many were of great size, while all displayed skilled and patient workmanship. Messrs. WM. CUTHBUSH AND SON had many excellent specimens in Box and Yew, and also showed Bay trees. The KNAPP HILL NURSERY CO.'s collection, chiefly in Yew, was also admirable. Mr. JOHN KLINKERT had a large collection set out in the form of a topiary garden in the grass. Messrs. HARRODS, LTD., also showed various topiary specimens, and Messrs. ROBERT GREEN, LTD., had a good collection of Bay trees in conventional form.

Miscellaneous Plants.

In the tents, Messrs. CARTER PAGE AND CO. arranged a large circular bed of especially well-grown Dahlias in pots. These bore flowers of good size and form, and represented nearly all the types of this autumn flower. The most attractive varieties were Romsey, Sterna, Delice, Saracen, Murillo and Mr. Dresselhuys of the Decorative type, and Dazzle, Lucies and Coltness Gem of the Singles, though the Cactus and small Paeony-flowered varieties were also very attractive. On the staging, Messrs. J. CHEAL AND SONS showed cut flowers of Star, Pompon, Decorative, and small Paeony-flowered Dahlias of good form and types.

At the end of one of the marquees there was a large bed of blue Hydrangeas, with Campanula calycanthemum exhibited from the STUDLEY HORTICULTURAL COLLEGE, while on the opposite side of the pathway, Mr. H. J. JONES filled a bed of similar size with many of his excellent varieties of Hydrangea.

Mr. W. H. WALTERS showed, on the staging, an exceedingly interesting collection of rare plants. The chief were Gladiolus crispiflorus, Meconopsis acauleata, Rhodostachys andina, Sempervivum Comollii, S. Mayeri, Mamillaria candida, M. pusilla, Echeveria pulverulenta and Fuchsia procumbens.

In an interesting exhibit on the tabling, Messrs. JOHN FORBES, LTD., showed well-grown plants of Brompton Stock and Dahlia Coltness Gem, and, in the front had batches of the useful dwarf bedding Geraniums Black Vesuvius and Salmon Vesuvius associated with a selection of Violas.

The Scientific Tent.

THE usual tent was devoted to "Science," but for some reason it again failed to receive the attention and patronage its contents deserved and the representatives of the various scientific establishments who were there ready and anxious to impart their knowledge and to solve the problems and to advise the seekers after the latest information must have had a weary time.

It was scarcely to be expected that large numbers of the visitors would be anxious to inspect the herbarium specimens—excellent though they were—of the plants collected by Mr. Kingdon Ward, which were sent from the Royal Botanic Gardens, Kew, or the similar herbarium specimens of new and rare plants from Eastern Asia, which the Edinburgh Botanic Garden contributed. But there should have been many gardeners, amateur and professional visiting Chelsea and interested in the newest Primulas, Meconopsis, Rhododendrons and other plants, who would wish to take advantage of the unique opportunity these exhibits afforded.

But even the Rothamsted exhibit of their researches on aphides and the equally important results of manurial experiments with Potatos did not receive a tithe of the attention from cultivators they deserved. This Station also showed water cultures illustrating the mineral requirements of various plants.

The diseases and pests of the Tomato and Cucumber have for many years been systematically studied at the Experimental and Research Station at Cheshunt, and the work done there is highly appreciated by the many large growers of the Lea Valley and other districts, so that the value of their exhibit was immense to market growers and gardeners generally.

The East Malling Research Station bears the same relation to commercial fruit growers, and their contribution was specimens and records showing the behaviour of the various fruit trees on the most-used stocks growing in different types of soil.

Exhibits of general interest to gardeners of all types were sent from Wisley to illustrate the scope and variety of the work done by the Royal Horticultural Society there. The exhibits of the IMPERIAL COLLEGE OF SCIENCE AND TECHNOLOGY, from its Research Institute in Plant Physiology, was perhaps of most interest to botanists; but the apparatus showing the rate of intake of carbon dioxide by the green parts of plants was also of value to the thoughtful gardener who desires to know how his plants live and grow.

The Art Tent.

AN innovation at Chelsea, which was evidently greatly appreciated by the visitors as well as the exhibitors, was the "Art Tent" which was erected in the Ranelagh Gardens. This, we understand, was the result of a suggestion made by The Queen last year. This large tent which accommodated the many paintings and drawings of gardens and the floral studies was filled with visitors during the whole of the time the show was open. Her Majesty expressed great gratification at the adoption of the suggestion and spent a considerable time critically inspecting the water colour paintings and purchased several, including a beautiful grey and rose study of an Elizabethan house with paved paths in the formal garden and pink Roses in the middle distance. A dainty little oval picture of well clothed Rose arches and another water colour study of sprays of Jasminum nudiflorum in blue vases were also purchased by the Queen.

With a few exceptions the garden scenes and landscapes did not seem so good as at the two previous shows. Many of them were indefinite and did not tell their story at all well. Bluebells in the woods at Kew and elsewhere were attempted by several exhibitors, but rarely with success. The foliage of the trees, which may or may not, have been Beeches was too yellow, even for spring foliage, and the Bluebells were often represented by smudges of blue paint, which well would have passed muster as impressionist clouds. The Rhododendron dells and Azalea gardens were better, though, on the whole, not equal to some of former years.

The various Rose gardens and Water Lily pools were mostly quite charming, as also were several of the general garden scenes and hardy flower borders. But the greatest artistic successes lay in the floral studies. The water colours of Wallflowers, Sweet Williams, Marigolds, Anemones, Marsh Marigolds, Iris, Scabious, Zinnias, Cinerarias and a plant of a Zonal Pelargonium, with salmon flowers, were faithfully executed and of considerable merit. From the horticultural point of view the most valuable of the many exhibits were the paintings and drawings of flowers and insects by Miss W. M. A. Brooke.

Horticultural Sundries.

THE many appliances, insecticides, fungicides, manures, and other aids and necessities to successful gardening, which were displayed in the two avenues received a deal of interested attention from the visitors, and the various demonstrations were eagerly and critically watched.

For the most part the greenhouses, garden frames, and heating appliances were shown in the Main Avenue. Substantial, yet light and airy, glasshouses of good design were erected, with attendant garden frames, by Mr. David Swain, while, near by, Messrs. Skinner, Board and Co. had one of their "Wire Tension" greenhouses, also completely fitted ready for the plants. With the glasshouse erected by Messrs. J. Weeks and Co. there was one of their well-known boilers with piping, and outside the house there was a serviceable lath blind for shading. In addition to specimens of their noted glasshouses and frames, which are made specially for commercial and for private gardens, Messrs. Duncan Tucker and Co. had a good range of garden furniture. The glasshouses shown by Messrs. Messenger and Co. were fitted with good heating and ventilating attachments and an admirable pattern lath blind for shading purposes. Messrs. A. Overend and Sons and Messrs. G. Hayward and Co. also showed greenhouses, frames, and garden furniture, and the Chase Continuous Cloche was set out.

The size of the boilers used for heating the large commercial glasshouses seemed somewhat a revelation to some of the visitors, who were fascinated by the enormous horizontal tubular boilers exhibited by Messrs. C. P. Kinnell and Co., and by the Thames Bank Iron Co., which measured nearly ten feet in length, and were proportionately high. Messrs. Kinnell and Co. also had examples of their smaller "Bisson" boiler, which is suitable for heating the larger glasshouses in private gardens, while their "Charm" boiler is adapted for the amateurs' small greenhouse. Similarly the Thames Bank Iron Co. showed their well-known "Robin Hood" boiler, which is useful for the private garden.

Lawn mowers were also displayed in considerable variety, and the assistants were busily demonstrating the good points and advantages of each particular pattern. Such old-established firms as Messrs. Ransomes, Sims and Jefferies, Messrs. Alexander Shanks and Sons, and Messrs. Thomas Green and Son, were illustrating their latest patterns of motor, horse and hand lawn mowers. There were also the "Atco" motor lawn mower, shown by Messrs. C. H. Pugh, Ltd., and motor lawn mowers and cultivators shown by Messrs. Piccard, Pictet and Co. The easy-running J.P. Super-Lawn-mowers, and good patterns by The Godiva Engineering Co. Messrs. Dennis Bros., Messrs. Lloyds and Co., Messrs. John Shaw and Sons, and Messrs. E. J. Woodman and Son were also to be seen.

General garden tools and appliances were freely displayed, and these were of considerable excellence. Wide ranges of well-made tools were shown by Messrs. A. Smellie and Co., Messrs. Thomas Gunn, Ltd., Messrs. R. Melhuish Ltd., and by Messrs. Holtzapffel and Co., while pruners and knives were exhibited by Mr. C. A. Jardine and the Wilkinson Sword Co. Messrs. H. Pattisson and Co. staged their well-known horse boots. The British Overhead Irrigation Ltd., and The Cooper Stewart Engineering Co. demonstrated the value of their water sprinklers, and Mr. J. Singleton showed his "Neuspray." Trucks, ladders and garden barrows were exhibited by the Acme Patent Ladder Co., and Mr. H. C. Slingsby. Major C. Walker set out his useful fruit tree protector; the Woodworkers' Co. displayed propagating frames and garden pots; and vases were shown by Messrs. D. and H. Wren, and Mr. H. T. Pitt.

Knapsack and other sprayers of great value were displayed by Messrs. Abol, Ltd., with their special syringes and a wide range of insecticides and manures. Mr. S. Condrup, and the Eclipse Spraying Co. had good knapsack sprayers.

The well-known Four Oaks Spraying Machine Co. had their useful knapsack and the larger pattern sprayers. The Stonehouse Works Co. were showing their easy working and effective pattern, and Messrs. Holder Harriden, Ltd., and Messrs. Martineau and Smith also showed sprayers. Mr. A. S. E. Sedgwick had a very ingenious hand sprayer, for fitting into an ordinary bottle, which, by the turn of a screw, regulates the spray. A wide range of useful watering cans was shown by Mr. J. Haws.

Manures and insecticides formed a very important part of the sundries exhibits. Messrs. Cory and Co. had a large stand where they displayed their Red Spider Death, a non-poisonous Weed Death, Fowler's Lawn Sand, Summer Cloud Shading and many other very effective preparations. A non-poisonous weed-killer was also staged by Messrs. Cooper, McDougall and Robertson, who also showed their insecticides, Katakilla and various other specifics. Messrs. Price's Candle Co. had samples of Gishurst's Compound and Gishurstine, and the Radium Fertiliser Co. showed samples of their specialities.

Special fertilisers for different plants and crops were shown by Messrs. J Fison and Co.; Messrs. Prentice Bros. had attractive tins and cartons of Tomorite, Ichthemic Guano, Lawn Sand, etc.; while the South Metropolitan Gas Co. showed bottles of their disinfectant fluid and samples of sulphate of ammonia. Velvas, Carmona, Multiple Plant Food and other manures were attractively displayed by Messrs. Robinson Bros. and Messrs. Camp and Co. gave prominence to their Cirengol, which is recommended for the destruction of green fly. Messrs. H. Scott and Sons staged their weed-killer and other preparations. Messrs. Wood and Son had a large tent of garden sundries.

A wide range of garden furniture, tools and sundries was displayed by Messrs. J. Carter and Co. in an attractive manner. Messrs. Wm. Wood and Co. Ltd., had a large selection of tools and other sundries; and Messrs. Geo. Monro, also had a large display in which they gave prominence to Cyanogas, for fumigating purposes, and illustrated their methods of partial sterilisation of the soil. Messrs. Allwood Bros. had a tent for the display of Carnation manures, flower clips and other adjuncts. Messrs. Adco, Ltd., showed their synthetic manure. The House and Garden Sundries Co. exhibited their seed-sower and other appliances, and the Incinerator Co. showed their method of refuse destruction.

Messrs. Wakeley Bros. exhibited their well-known Hop manure; The Key Fertiliser Co. showed treated turf; and Mr. A. B. Johnston had excellent turves of rich yellow loam. Garden ornaments and seats were exhibited by Messrs. Pulham and Son, Messrs. Sanders and Co., Castles' Ship Breaking Co., Messrs. Hughes, Bolckow and Co., Messrs. Piggott Bros. and Co., Messrs. Smith and Ellis, Ltd., Messrs. T. J. Syer and Co., Messrs. New Cross Timber Co., The "Not Forgotten" Association, Messrs. Papworth Industries Co. Messrs. Paramount Furnishing Co., Messrs. Kelly and Co., the Lord Roberts Memorial Workshops, Messrs. Harrods, Ltd., and Messrs. A. W. Gamage, Ltd.

The Disabled Soldiers' Industry had an interesting and useful variety of garden stools, baskets, mats and other articles. Mr. John Pinches showed his well-made metal labels and flower vases. Messrs. Fowler, Lee and Co. had fruit and vegetable preserving appliances; Mr. J. N. Harvey showed his Fibrex plant pots.

Tents were occupied by The Florists' Telegraph Delivery Association, *The Gardeners' Chronicle*, and other horticultural journals in the Avenue.

FLORISTS' TELEGRAPH DELIVERY ASSOCIATION, BRITISH UNIT.

The third annual general meeting of the F.T.D.A. was held in Holborn Restaurant, London, on May 26, and presided over by the President, Mr. J. Dobson, of Messrs. Leighton's, Glasgow. For the first time, the American F.T.D.A. was represented by President Charles Brown and Secretary Albert Pochelon, who were accompanied by their wives. They came over especially to attend the meeting and strengthen the bond of union between American and British F.T.D. florists. The meeting was well attended.

In his opening speech, the President extended hearty greetings in the name of the British Unit to Mr. and Mrs. Brown and Mr. and Mrs. Pochelon. It was, he said, a red letter day to meet them personally, and the inspiration received augured well for the success of the British Unit.

The third annual report was taken as read, and contained the following salient particulars. During the year, sixty-three members were enrolled, thirteen had resigned, making a total membership of 242—an average increase of one member per week There had been increased activity on the part of many members in giving publicity to the slogan, "Say it with Flowers." Mothers' Day was instituted to be observed on the second Sunday in May, and the idea had been well taken up by Members. The florists of Tunbridge Wells had undertaken co-operative publicity on behalf of Mothers' Day.

The financial report of the Hon. Treasurer, Mr. S. M. Segar, and submitted to the meeting by the Secretary, showed a balance in hand of £174 14s. 6d.; liabilities in connection with an exhibit at the Chelsea Flower Show will be somewhere about £100, leaving a balance of £74 14s. 6d. to carry forward.

Mr. Percy M. Whellock, Palmers Green, was elected President for the ensuing year, and Mr. Alfred Goodyear, Bond Street, London, vice-president. Both the Hon. Treasurer, Mr. S. M. Segar, and the Hon. Secrerary, Mr. J. S. Brunton, were re-elected. Mr. E. F. Hawes, Fortune Green, and Mrs. J. Sawyer, Plumstead, were elected to serve on the Committee. The Hon. Auditors, Messrs. Cobley, Kay and Co., were re-elected.

Mr. Charles Brown, addressing the meeting, said, when last January the Board of Directors of the F.T.D.A. held its meeting at Detroit and a ruling was made that myself, together with Mr. Pochelon, were to come over to London to attend this meeting, my heart was truly thrilled. We have been over here a week, and it has been full of enjoyment, of sight-seeing, observation and thought. One of the great principles of "Flowers by Wire" is service. The principle is to give dollar for dollar the value of the order to the party to whom it is sent. Since I have been in London it has been my pleasure to visit Covent Garden, and you have every reason to be proud of that market. It is the greatest market of its kind in the whole world. You have varieties of flowers far exceeding our varieties in America, and in quality you are far ahead. Your Chelsea Flower Show was the most magnificent I have ever beheld, and I think you will agree with me that the people of this land should feel greatly indebted to those men who, without thought of remuneration, have made it possible that your great public may have the pleasure and privilege of enjoying such a wonderful show. In the development of the British Unit of the F.T.D.A., you must not depend upon the officers, or you will not succeed. Each and every one must dedicate himself to the effort. In the American association the business transacted through it over a period of eighteen months has increased at a ratio from twenty-five per cent. to thirty per cent. monthly. During the month of April, the year previous, we had 110,000 orders, making an approximate increase of 600,000 dollars. This year, there was a further increase of 30,000 orders, and the value increased by 120,000 dollars for the same period.

Mr. Pochelon dealt in detail with the success of "Mothers' Day" in America. He also impressed upon the meeting the fact the F.T.D. organisation is bound to be eventually the biggest factor in the florists' trade, for the simple reason its main object is to give the public a better and quicker floral service.

Other speakers were Mr. J. Artindale, Mr. Goodyear, Mr. Hillman and Mr. Leonard.

At the dinner held after the annual meeting, 118 were present. The principal guests of the evening were Mr. and Mrs. Charles Brown Mr. and Mrs. Albert Pochelon, Mr. and Mrs. George Monro, and Miss Bailey, Cleveland, Ohio. Mr. Percy Whellock occupied the chair, and he was supported by various officers of the British Unit. Two tastefully decorated baskets of flowers were received from the London Gardens, Knightsbridge, and these occupied a position of honour on the top table. A musical programme materially added to the enjoyment of the evening. After the toasts of H.M. The King and The President of the United States, the whole company sang combined British and American Anthems.

Proposing the toast of The Florists' Telegraph Delivery Association, Mr. C. Engelmann stressed the broad-minded spirit of co-operation animating the members of this world-wide organisation. He coupled with the toast the name of Mr. Charles Brown.

Responding, Mr. Brown gripped his audience with a remarkably fine speech. He said he would like to drive home the fact the F.T.D. service was an individual effort on the part of its members, and in no sense should the British Unit attempt to develop any high-salaried officials. They should seize every opportunity to tell of the benefits of the service. In the United States the growers were beginning to realise that it is the best proposition for the grower, the wholesaler, and likewise the retailer, to increase the sales of flowers and plants. In the building of a greater F.T.D. in Britain and on the Continent, it was not only necessary to co-operate in this country but with other countries.

Proposing the toast of Our Guests, the Hon. Secretary, Mr. J. S. Brunton, read extracts from numerous cables and telegrams from F.T.D. members, both near and far, wishing the meeting of the British Unit every success. Mr. Brunton said they expected to have with them to-night the President of the Chamber of Horticulture, Mr. A. White, the President of the Horticultural Trades Association, Mr. E. L. Laxton and the President of the British Florists' Federation, Mr. D. Ingamells, but as an important trade conference was taking place in Paris they were unable to be present. They had, however, one present and no better man could represent the three Associations, and he would couple with the toast the name of Mr. George Monro.

In response, Mr. George Monro spoke of the international work being carried on at the International Conference which began on May 26 at Paris. The Conference began with France, Belgium and Great Britain, but he now believed there were twelve countries represented this year. There was one country they wished would join, and he thought if it was able to attend this Conference we should have such a following that there would be an end to such an Act as Quarantine 37, which prevents the United States from enjoying our produce. Speaking of Covent Garden, Mr. Monro said the records of it went back to 1230, and that at present the sales of cut flowers were something near £100,000 a week.

Responding to the toast of Our President, proposed by Mr. E. F. Hawes, Mr. Percy Whellock spoke in an enthusiastic manner of the benefits arising from being a member of the F.T.D.A.

FÉDÉRATION HORTICOLE PROFESSIONNELLE INTERNATIONALE.

THE annual conference of this international federation of professional horticulturists was held this year in Paris, at the Offices of the Société Nationale d'Horticulture de France, Rue de Grenelle.

The proceedings were opened at 9 a.m. on Thursday, May 27, by an address of welcome by M. Fernand Rabier, President of the Fédération Nationale des Syndicats Horticoles de France, who referred to the great evidence of goodwill shown by the wonderful gathering of commercial horticulturists consisting of delegates and visitors from France, Belgium, Great Britain, Holland, Italy, Switzerland and Germany, Spain and America.

The opening proceedings of the annual conference of the F.H.P.I., is always taken very seriously, and speeches of welcome are given by prominent horticulturists of the nation acting as hosts. On this occasion the French Minister of Agriculture presided at the opening ceremony, and was supported by M. F. Rabier; M. Fernand David, President of the Société Nationale de France; M. Guillaumin, President of the Municipal Council of Paris; M. Boujo, Prefect of the Seine; and M. Moraine, Prefect of Police. After M. Rabier's address of welcome to all the nationalities represented and in which he stressed the value of horticulture as a humanizing influence that made for peace and goodwill among the nations, the Minister of Agriculture spoke, adding words of welcome on behalf of the French Government and of Paris. He then proceeded to cite a list of decorations awarded to leading Continental horticulturists by the French Government. His announcement that M. Sauvage — Treasurer of the F.H.P.I. and chief of the Bureau of Registration of New Plants and Flowers—had been elevated to the rank of Commander of the Ordre de la Merité Agricole, was received with applause from all present.

Paris has many attractions, horticultural and general, and perhaps this was the reason why there were more visitors—in addition to delegates—than usual to this Conference. Nearly all the delegates attended, and there were over one hundred visitors in the body of the hall when the Conference opened. The delegates were grouped, as usual, in their nationalities, at tables set apart for them just below the platform, so that it is an easy matter for the President to ask whether any particular nation opposed or agreed to any question under discussion. M. Rabier adopted this method of voting by nationalities, and here, as in all other parts of the proceedings, he proved an admirable president, indeed, under his genial and firm guidance more than half the number of items of the long agenda were disposed of before 11.30, when he closed the session and said there would be no further meeting of the Conference that day, but the special international committee appointed for the purpose, would meet to consider the collection of information concerning the transport of horticultural goods from one country to another, with a view to an endeavour to obtain the same standard of transport rates everywhere.

The British delegates present were: Mr. W. J. Lobjoit, Controller of Horticulture, representing the English Ministry of Agriculture; Mr. E. Laxton, President of the Horticultural Trades' Association; Mr. Oldham and Mr. G. D. Clarke, from the same Association; Mr. Alfred W. White, President of the Chamber of Horticulture; Mr. S. W. Hale, Secretary of the Chamber; Mr. George Monro and Mr. Brunton, also from the Chamber; Mr. A. Galt, Chairman of the Scientific Committee of the Chamber of Horticulture; Mr. C. H. Curtis, Secretary of the British Florists' Federation, and representing *The Gardeners' Chronicle*; and Mr. W. E. Wallace, also from the B. F. F.; Mr. J. Arluison, International Secretary for the British section.

Other British horticulturists and visitors present included Mrs. G. Monro, Mrs. Laxton, Mr. and Mrs. H. G. Mount, Miss Rogers (*Nurseryman and Seedsman*), Mrs. W. E. Wallace, Miss M. White, Mrs. Galt, Mrs. Hale, Mr. and Mrs. W. A. Robinson, Mr. E. F. Murrell, Mr. George T. Dickson (Newtownards), Mr. J. W. Fife (Edinburgh), Mr. Findlay (Glasgow), Mr. W. E. Rich, Mr C. H. Evans (Wales), Mr. J. Basham and Mr. R. J. Wallis.

France was well represented by M. Turbat and M. Barbier, the Secretaries of the F.H.P.I., M. Rivoire, M. Grandorge, M. Georges Truffaut, M. Norbet Levavasseur, M. Lucien Levavasseur, M. Sauvage, M. Royer and others.

The Belgian delegation included M. Chas. Pynaert, M. de Smet, M. Delarue, M. H. van Orshoven, and M. Gentil, of the Brussels Botanic Gardens.

Holland's representatives included Mr. Krelage, Mr. Ruys (President in 1925), Mr. Gooter, Mr. Reynierse, Mr. Bonthuis, Mr. Sevenster and Mr. Toulon van de Koog. Everyone missed the cosmopolitan Mr. Jac Smit, who has enlivened the proceedings of most of the Conferences held since the war. Mr. Stahel and Mr. Vacheroux represented Switzerland, and Mr. Ketton was present for Luxembourg.

CONFERENCE.

Following the ceremonial opening of the Conference, M. Rabier, President of the Fédération for 1926, occupied the chair. M. Rabier is Sénateur du Loiret and also President of the Fédération Nationale des Syndicats Horticoles de France. The meeting at once appointed Mr. Krelage and M. Chas. Pynaert as Vice-Presidents, and Messrs. Barbier, Ketten and Arluison as International Secretaries for the Conference.

At the suggestion of the President, the delegates accepted the lengthy secretarial reports of the proceedings of the Conference held at Heemstede, Haarlem, in 1925, without having them read. As these had already come before the various national representatives, and points arising were included in other parts of the agenda, much time was thus saved.

M. Sauvage presented the financial statement. He also reported concerning the International Bureau of Plant Registration, pointing out that the various nationalities did not make good use of the opportunities offered by the Bureau to secure the international registration of novelties.

Always careful to preserve its dignity as an international professional body, the Conference invariably gives great attention to every application for admission to the Fédération. Three such applications were received. The one from Austria was eventually referred back with a request that the horticultural society making the application should group its professional members into a distinct section or otherwise amend its rules to bring itself within the scope of the Fédération. Another request was from the Dutch Plant Exporters' Association, which desired admission as a distinct society. Scenting some domestic difficulties, the Conference agreed that individual societies should be admitted to the Fédération only through the co-ordinating horticultural board or Chamber of the particular country, and proceeded to amend the rules to that effect.

The third application, from the Florists' Telegraph Delivery Association of America, appeared to have been made under some misapprehension. It proved, in fact, to be a request that Mr. C. H. Brown and Mr. Pochelon—the President and Secretary now travelling in Europe for the purpose of extending the international character of their Association—should be admitted to the Conference and given a hearing. The delegates agreed to invite those gentlemen to attend on the second day of the Conference and, also, considering the international character of the F. T. D. Association, to grant admission to the Fédération if this was applied for.

Luxemburg raised a mild protest against the amount of the annual fees demanded by the F.H.P.I. from the various national organisations belonging to it. The subject was discussed at some length until the British delegates moved the previous question; voting followed, and only Luxembourg and Switzerland voted for a reduction of subscriptions. The Conference smiled audibly when Mr. Arluison pointed out that Great Britain might quite reasonably plead poverty in regard to the annual subscription on the grounds that it was probably the smallest country considered from the point of view of horticultural exports.

The next business was the consideration of the reports concerning the position of commercial horticulture in the federated countries. These were all interesting, and, on the whole, showed that business has improved considerably, notwithstanding post-war difficulties. It was only natural that the subject of American prohibition of horticultural imports should be raised by the Belgian and Dutch reports. Mr. Chas. Pynaert made some verbal additions, on these lines, to the report from Belgium, and at once a storm of protest arose against the American Quarantine Order; and amid the storm the only peaceful spot was the one occupied by the British delegates. But M. Rabier was adamant and smilingly declined to allow the French, or any other, delegates to discuss the prohibition question until the rightful place for so doing was reached on the agenda.

International transport of horticultural produce was then considered, but it was obvious the Conference needed fuller information before any scheme of standard rates could be put forward. This information the various nationalities agreed to collect in time for the next Conference.

The Conference then adjourned to take part in the luncheon offered to the delegates and visitors by the Fédération Nationale des Syndicats Horticoles de France, at the Palais d'Orsay Hotel. The French Minister of Agriculture presided, and there was a large attendance at this first item in a programme of charming and generous hospitality. Many and eloquent were the speeches which followed the luncheon, including a brief but characteristically British expression of thanks and appreciation from Mr. Lobjoit.

Later in the afternoon the President of the Municipal Council of Paris received the delegates and visitors in the magnificent Hotel de Ville. Thus, in a few short hours, the Government of France and the City of Paris paid tribute to international horticulture.

(*To be continued.*)

ROYAL SCOTTISH ARBORICULTURAL.

Northern Branch.

The first excursion of the season for the members of this branch took place to the woods of Gordon Castle, Fochabers, and was well-attended, representatives being present from Morayshire, Nairnshire, Inverness-shire and Ross-shire. Mr. Angus Cameron, factor to His Grace the Duke of Richmond and Gordon, received the company on their arrival. Mr. John Clark, the head forester, and Mr. Charles Webster, head gardener, acted as guides during the tour of inspection. The places visited included the Hampshire plantation, the old Deer Park wood, and the Ordiga plantation. In all these woodlands much was found to admire and instruct. The saw-mill was next visited, where some remarkably fine specimens of timber, grown on the estate, were exhibited. From thence a call was made to the nursery, where young trees and transplants at various stages of growth proved a source of much interest. The tour ended at the cone kiln, when seeds from the different trees are dried and prepared for planting. The company then returned to Fochabers, where the Duke of Richmond and Gordon entertained them to tea.

Major Hugh Rose of Kilravock, on behalf of the members of the branch, returned thanks to the Duke and to Mr. Angus Cameron for the hospitality extended to them. He also paid warm tributes to Mr. Clark and Mr. Webster for having made their visit to Gordon Castle so interesting and instructive. Mr. Cameron, in replying, said that a great deal of the pleasure the visitors had had that afternoon was due to Mr. Clark and Mr. Webster, a sentiment that was heartily applauded. Mr. Clark made a few remarks supplementary to some of the points he had been explaining during the afternoon, and paid a warm tribute to the Duke for the great interest he takes in the work of re-afforestation. Major Scott, of the Forestry Commission Inverness, and Mr. R. L. Anderson, of the Forestry School, Beauly, also spoke in praise of the remarkably fine results in forestry that had been achieved on the Gordon Castle estates.

ROYAL CALEDONIAN HORTICULTURAL.

The ordinary monthly meeting of this Society was held on May 6, at 5, St. Andrew Square, Edinburgh. Mr. W. J. Thomson, President, in the Chair.

A paper on "Horticulture in Relation to Public Park Work," by Mr. W. W. Pettigrew, Manchester, was read by the Secretary; Mr. Pettigrew being unable to be present owing to the railway strike. He contrasted the horticultural work of a public park, in which the general taste of the public had to be catered for, with that of a private establishment, where the tastes of the employer only had to be studied, and, among other things he advocated the establishment of a central propagating department in all large cities in order to prevent overlapping, as was done in Manchester.

The only exhibit was Alpines, including, Tulipa Clusiana, by Messrs. Laird and Dickson, Pinkhill (Silver Medal).

It was intimated that Mr. Johnston, Aberlour House Gardens, Banffshire, and Mr. H. R. M'Glashan, Edinburgh, had obtained first-class certificates in the Society's recent examination in horticulture.

WAKEFIELD AND NORTH OF ENGLAND TULIP.

The ninetieth annual show of the Wakefield and North of England Tulip Society was held at the Brunswick Hotel, Wakefield, on Saturday, May 22, and the three following days. A noteworthy feature was that for the sixth year in succession Mr. C. W. Needham won the Silver Challenge Cup. In addition to the ordinary prizes, there were special prizes given by Messrs. F. K. Perkin and Son, for the best feathered flower in the local classes; by Messrs. Beaumont and Saville, for the best six rectified Tulips, dissimilar; and by Mr. C. W. Hazell, for the best three breeder Tulips, dissimilar. As usual, there were prizes for the premier breeder, flamed and feathered blooms in the open, and also in the local classes.

In the open classes, the best exhibit of nine Tulips, consisting of three Bizarres, three byblomen, and three roses, each trio including one breeder, one feathered and one flamed, was staged by Mr. C. W. Needham, Hale, who had Sir Joseph Paxton (bizarre breeder), Masterpiece (bizarre feathered), Annie McGregor (bizarre flamed), Athos (byblomen breeder), Lucy Luard (byblomen feathered), George Edward Schofield (byblomen flamed); Annie McGregor (rose breeder) Celia (rose feathered) and Annie McGregor (rose flamed); second, Mr. C. J. Fox, Sparkhill, Birmingham, with Peter's Annable (bizarre breeder), Sam Barlow (bizarre feathered(‘ Sir Joseph Paxton (bizarre flamed), Ida Sutton (byblomen breeder), Lucy Luard (byblomen feathered), King of the Universe (byblomen flamed), Miss Burdett Coutts, (rose breeder), Lizzie (rose feathered), and Clio (rose flamed); third, Mr. G. W. Bentley, Stakehill, Castleton, near Manchester; fourth, Mr. S. F. Richmond, Ossett.

For six breeders, dissimilar, Mr. C. W. Needham again excelled with Goldfinder, Alfred Lloyd, Electra, Daphne, Mabel and Clarissa; second, Mr. G. W. Bentley, who showed Sulphur, Alfred Lloyd, Columbine. Ethel, Annie McGregor and Mary Swann; third, Mr. C. J. Fox.

The best pair of flamed Tulips, any class, was shown by Mr. C. J. Fox, whose varieties were Sam Barlow and Duchess of Sutherland; second, Mr. C. W. Needham with Sir Joseph Paxton and Annie McGregor; third, Mr. S. F. Richmond, with Sam Barlow and Mabel. The best pair of feathered Tulips, any class, was staged by Mr. S. F. Richmond, who showed Trip to Stockport and Mrs. Douglas Fox; second, Mr. C. J. Fox, with Sam Barlow and Mrs. Douglas Fox; and third, Mr. C. W. Needham, with Sam Barlow and Adonis.

In the local classes the best pan of six rectified Tulips, dissimilar, was shown by Mr. F. Fox; second, Mr. S. F. Richmond; and third, Mr. E. H. Robinson. For a pan of six breeders, dissimilar, Mr. S. F. Richmond excelled; Mr. F. Fox being placed second, and Mr. A. Burrill, third. Mr. Richmond also carried off the premier award for a pan of three breeder Tulips, dissimilar, with Mr. R. Robinson, second, and Mr. E. H. Robinson, third.

In the Single bloom classes the first prizes. were awarded as follow:—Bizarre breeder, Mr. S. F. Richmond, with Red; byblomen breeder, Mr. E. H. Robinson, with Columbine; rose breeder, Mr. J. W. Spencer, with Annie McGregor; flamed bizarre, Mr. F. Fox, with Sam Barlow; flamed byblomen, Mr. E. H. Robinson, with Mrs. Whitaker; flamed rose, Mr. F. Fox, with Annie McGregor; feathered bizarre, Mr. A. Burrill, with William Wilson; feathered byblomen, Mr. S. F. Richmond, with Trip to Stockport; feathered rose, Mr. J. W. Spencer, with Mrs. Collier.

Obituary.

Thomas Jenkinson.—Mr. Thomas Jenkinson, one of the principal growers of Strawberries and vegetables in East Lothian, died on May 14, aged seventy-eight years. He succeeded his father in Beanston Gardens, over forty years ago, and removed in 1895 to St. Lawrence House and grounds, close to Haddington railway station, where his skill was directed to raising both fruits and vegetables of superior quality. The fruit was disposed of principally by salesmen in Edinburgh, while the vegetables were sent to Glasgow. Four years ago he relinquished St. Lawrence House for Hawthornbank and Blinkbonny, both places adjoining the Burgh, but of greater extent and more suitable for his extending business. The funeral took place in Haddington Cemetery on Tuesday, the 18th ult. He leaves a widow and family; his eldest son, William, is succeeding him in the business.

Linnaeus James.—We regret to learn from his son that Mr. L. James died on Whit-Sunday morning at 30, High Street, Sydenham, S.E. Deceased had been head gardener at Walkern Hall, Stevenage, Herts; Hall Place, Cranleigh; Dudmaston Hall, Salop, and was well known as a successful exhibitor of fruits at Sandy, Birmingham, Gloucester, and Cheltenham. He had the honour of growing and supplying all the British fruit for the late King Edward's banquet at Birmingham some years ago. Mr. James was interred at Lewisham Cemetery; he leaves a widow, son, and one daughter.

ANSWERS TO CORRESPONDENTS.

Market Bunch of Lily-of-the-Valley.—*P. W. S.* A market bunch of Lily-of-the-Valley consists of twelve spikes of flowers, usually with a few leaves.

Names of Plants.—*R. E.* 1, Dactylis glomerata variegata; 2, Phalaris arundinacea variegata; 3, Arundo conspicua. The Rheums are both forms of R. palmatum. a very valuable species.

Nectarine Fruits Failing to Swell.—*J. D.* From the description you give it would appear that the roots of your Nectarine trees are in an unhealthy condition. An old vine border is not a suitable place in which to plant a Nectarine tree, for the soil will be exhausted and sour, and no amount of feeding with liquid manure and lime fertilisers will restore its fertility. Lift the tree in the early autumn. and in the meantime prepare a compost consisting of three parts rather strong calcareous loam with a fair sprinkling of bone-meal, adding one part in four of the following mixture: old lime rubble, burnt earth and brick rubble. Examine the drainage and pay strict attention to watering and other cultural details, when the trees should be recover a healthy condition quickly

Iris Flowers Failing to Open.—*F. J.* Not knowing all the circumstances and conditions under which the plants have been grown, it is difficult to state why your Iris Mrs. Allan Gray, fails to develop its flowers normally. It may be that this variety is prone to behave in this manner, but we have had no personal experience of the cultivation of this particular sort. We are also unable to explain why your plant of Styrax officinalis drops its flower buds, unless it be due to cold weather; the flowers of many flowering trees and shrubs have been spoiled this season by unfavourable weather.

Communications Received.—F. M.—W. E. B.—R. E.—H. H. S.—H. G. C.—C. E,—H. A. L.—P. C.—M. S.

MARKETS.

COVENT GARDEN, Tuesday, June 1, 1926.

Plants in Pots, etc.: Average Wholesale Prices

(All 48's except where otherwise stated).

	s. d. s. d.
Adiantum cuneatum per doz. ...	12 0-15 0
—elegans ...	12 0-15 0
Aralia Sieboldii	9 0-10 0
Araucarias, per doz.	30 0-42 0
Asparagus plumosus	12 0-18 0
—Sprengeri ...	12 0-18 0
Aspidistra, green	36 0-60 0
Asplenium, per doz.	12 0-18 0
—32's	24 0-30 0
—nidus	12 0-15 0
Cacti, per tray —12's, 15's ...	5 0—7 0
Cinerarias, 48's, per doz. ...	18 0-21 0
Crassulas, 48's, per doz. ...	24 0-30 0
Crotons, per doz.	30 0-45 0
Cyrtomium ...	10 0 25 0
Erica persoluta 48's, per doz.	24 0-30 0
—persoluta 60's per doz. ...	12 0-15 0
—coccinea, 48's per doz. ...	24 0-30 0
Fuchsias, 48's per doz. ...	12 0-18 0

	s. d. s. d
Heliotrope, 48's, per doz. ...	12 0-15 0
Hydrangeas, pink, 48's, per doz.	24 0-30 0
—white, 48's per doz.	24 0-27 0
—blue, 48's, per doz.	24 0-36 0
Ivy Geranium, 48's, per doz.	15 0-18 0
—60's per doz. ...	9 0-12 0
Marguerites, 48's per doz. ...	18 0-21 0
Nephrolepsis in variety ...	12 0-18 0
—32's	24 0-36 0
Palms, Kentia	30 0-48 0
—60's	15 0-18 0
Pteris, in variety	10 0-15 0
—large, 60's ...	5 0—6 0
—small	4 0—5 0
—72's, per tray of 15's	2 6--3 0
Rhodanthe, 48's, per doz. ...	12 0-15 0
Roses, Polyantha 48's, per. doz.	24 0-30 0
—Rambler, various sizes each	7 6 25 0
Spiraea, pink, 48's, per doz.	18 0-21 0
—white, 48's, per doz.	15 0-18 0
Stocks, white and coloured 48's per doz.	15 0-18 0

REMARKS.—Business is fairly brisk in this department. All bedding plants are much in demand; also flowering plants for decorative purposes. The most attractive subjects are Crassulas, white and pink Ericas, Fuchsias, Heliotropes, white and coloured Hydrangeas, in various sizes, Ivy Geraniums, Marguerites, Rodanthes, Polyantha and rambler Roses, pink Spiraeas and Lilium longiflorum in pots. The quantities of Ferns, Palms and other foliage plants are somewhat limited; practically all the stands are filled with bedding plants.

Cut Flowers, etc.: Average Wholesale Prices.

	s. d. s. d.
Adiantum decorum, doz. bun.	9 0-10 0
cuneatum, per doz. bun. ...	8 0-10 0
Arums (Richardias) per doz.	5 0--6 0
Asparagus plumosus, per bun., long trails, 6's	2 0--3 0
med. sprays	1 6--2 6
short	0 9--1 3
—Sprengeri, bun. long sprays...	1 6--2 0
med. „ ...	1 0--1 6
short „ ...	0 4--1 0
Carnations, per doz. blooms .	2 6--4 0
Cornflower, pink, per doz. bun.	4 0--5 0
—blue, per doz. bun.	4 0—5 0
Croton leaves per doz. ...	1 9--2 6
Fern, French, per doz. bun.	10 0-12 0
Forget-me-not, per doz. bun.	6 0--8 0
Gardenias, 12's, 18's, per box	4 0--5 0
Gladiolus, The Bride, per doz. bun.	15 0-18 0
—primulinus 6's, per doz. bun....	18 0-24 0
—Blushing Bride, per doz. bun...	12 0-18 0
—Peach Blossom, per doz. bun.	18 0-21 0
Gypsophila ...	9 0-10 0
Heather, white, per doz. bun.	10 0-12 0
pink, per doz. bun.	9 0-12 0
Iceland Poppies, per doz. bun.	3 0--4 0
Iris, blue, per doz. bun. ...	12 0-24 0
—mauve, per doz. bun. ...	15 0-18 0
—white, per doz. bun.	18 0-24 0
—yellow	24 0-30 0
Ixias, red ...	3 0--4 0
—mixed	3 0--4 0
Lapageria, white, per doz. blooms	3 6--4 0
Lilium longiflorum long, per doz.	3 0--3 6

	s. d. s. d.
Lilium speciosum rubrum, long, per doz. blooms ...	3 6--4 0
—short doz. blooms ...	6--4 0
Lily-of-the-Valley, per doz. bun.	24 0-36 0
Narcissus double white, per doz. bun.	8 0--9 0
Nigella, blue, per doz. bun. ...	9 0-10 0
Orchids, per doz.	
—Cattleyas ...	24 0-30 0
—Cypripediums	5 0--7 0
Paeonies, white, per doz. bun. 6's...	15 0-18 0
—pink, per doz. bun. 6's	12 0-15 0
—red, per doz. bun. 6's	12 0-15 0
Pinks, white per doz. bun. ...	3 0—6 0
Pyrethrum, double pink, per doz. bun.	3 0—5 0
—single pink, per doz. bun.	3 0—4 0
—single red, per doz. bun. ...	3 0—4 0
—double white, per doz. bun.	3 0—5 0
Roses, per doz. blooms—	
—Madame Abel Chatenay ...	2 0--2 6
—Molly Sharman Crawford	3 6--4 6
—Richmond ...	3 0--3 6
—Columbia ...	3 0--3 6
—Golden Ophelia	3 0--3 6
—Sunburst ...	2 6--3 0
—Mrs. Aaron Ward	2 6—3 0
—Madame Butterfly	3 0--4 0
Smilax, per doz. trails	5 0--6 0
Statice sinuata per doz. bun.	3 0--4 0
—Suworowii ...	18 0-24 0
Stephanotis, per 72 pips... ...	3 0--3 6
Stock, double white, per doz. bun.	12 0-18 0
Sweet Peas, per doz. bun. ...	9 0-18 0
Violas	3 0--4 0

REMARKS.—There has been a further increase in supplies especially of out-door blooms, such as Cornflowers, Gypsophila, Paeonies and single and double Pyrethrums, and prices are on the down grade for these subjects. The newest arrivals are Nigella and Statice Suworowii. Sweet Peas are the finest so far offered this season, and supplies are ample for present requirements. Gladioli are much improved in quality, and the large-flowered varieties are now obtainable; also G. primulinus in variety. The improved weather has resulted in large supplies of Carnations and Roses; these flowers vary in price according to their quality, but the value generally is low, even for the finest blooms. Large quantities of Irises have been arriving from Guernsey during the past week, and owing to their late arrival, they have been difficult to clear. These Irises have been the cheapest flowers on the market during the past few days, the quality generally being poor. Supplies from home-growers have been more reliable, and prices have remained firm, especially for best white and yellow blooms. Arums (Richardias) are in shorter supply, but Lilium longiflorum is in good condition and cheap. Double white Stocks and white Pinks are selling freely; small consignments of His Majesty have been on offer from home-growers.

Fruit: Average Wholesale Prices.

	s. d. s. d.
Apples, Australian—	
—Cleo	13 0 15 0
—Jonathan ...	11 0-12 0
Apples, New Zealand—	
—Delicious ...	13 0-14 0
—Cleo	14 0-16 0
—Cox's	14 0-18 0
—Dunn's' ...	13 0-14 0
—Jonathan ...	12 0-14 0
Apples, Tasmanian—	
- Cox's Orange Pippin... ...	13 0-15 0
—Ribston ...	10 0-11 0
—Jonathan ...	12 0-14 0
—Cleo	12 0-14 0
—Dunn's Seedling	12 0-14 0
—others	8 0-10 0
Bananas	14 0-22 6
Figs, forced, per doz.	4 0—12 0
French Black Currants, per chip	— 6 0
Gooseberries—	
—Devon, 12 lb. chip	3 0—4 0
—Kent, halves	5 0—7 0
Grape Fruit ...	35 0-50 0
Grapes, English Black Hamburgh	2 6—6 0

	s. d. s. d.
Grapes, Australian—	
—O'Hancy ...	18 0-20 0
—Black Malagar	22 6-25 0
Lemons, Messina, per box ...	13 0-15 0
—Naples, box	18 0-25 0
Melons—	
—Forced Guernsey specials ...	— 5 0
—others	2 0—4 0
Oranges—	
—Denia	16 0-30 0
—Murcia... ...	16 0-30 0
Peaches, Belgian, per doz. ...	4 0-10 0
Peaches, English, per doz. ...	6 0-18 0
Pear, Australasian—	
—Beurré Bosc ...	6 0--7 6
—Glou Morceau	5 6--7 0
—Josephine de Malines... ...	6 6--8 0
—Winter Nelis...	8 0-10 0
Box Cherries ...	1 3--2 6
Crates French Cherries ...	6 0-10 0
—Boxes... ...	1 3—2 0
Pines	2 0—4 0
Spanish Apricots per crate ...	8 0-10 0
Strawberries, per lb	4 0-10 0

Vegetables: Average Wholesale Prices.

	s. d. s. d.
Asparagus, English—	
—Evesham—	
Special ...	5 0 -8 0
Best	2 0--3 0
—Devon ...	5 0-12 0
—Cambridge ...	1 6--2 0
Beans—	
—Madeira, per basket ...	3 0--4 0
Box	5 0--6 0
—Guernsey and Worthing forced .	1 6--2 0
Beets, per cwt.	7 6--9 0
Cabbage, per doz.	1 9--2 3
Carrots, New, per doz. bundles	3 0—6 0
Cauliflowers, per doz.	5 0--6 0
Cucumbers, per doz.	4 0--5 0
—Flats	10 0-15 0
Horseradish, per bundle ...	1 6--2 0
Lettuce, round, per doz. ...	1 6--2 6
Marrows, forced per doz. ...	8 0-15 0
Mint, forced ...	2 0--3 0
Mushrooms, —French ...	1 6--2 0
Mushrooms, —cups ...	2 0--3 0
—Broilers ...	1 6--2 0
Onions—	
—Egyptian ...	— 12 0
Parsnips, per cwt.	5 0--6 0

	s. d. s. d.
Peas, forced ...	1 0--2 0
—French, per bag	6 0-10 0
Potatos—	
—King Edward per cwt. ...	6 0--7 0
—others	4 0--5 0
New Potatos—	
—Spanish, per cwt.	10 0-11 0
—St. Malo ...	12 0-13 0
—Azores, per case	6 0-10 0
—Canary Island	10 0-14 0
—Guernsey, per cwt.	14 0-16 0
—Jersey, per cwt.	14 0-16 0
Rhubarb, forced, per doz. bundles	1 9--2 0
—Outdoor, per doz.	9 0-10 0
Spinach, per bushel	3 0--4 0
Spring Greens, per bag ...	2 0--3 0
Tomatos, Canary Islands Best.	20 0-25 0
—English, pink,	10 0-12 0
—pink and white	10 0-12 0
—blue	8 0—9 0
—white	8 0--9 0
—Guernsey ...	9 6-10 6
Turnips, per cwt.	5 0--7 0
—new, per doz. bunches ...	6 0—8 0
Turnip Tops, per bag ...	3 6--4

REMARKS.—Business all-round is on a considerable scale, and a large volume of produce is being handled. Choice fruits, such as Grapes, Peaches, Melons, Figs and Strawberries are selling well, the last fruit in particular being in keen request. High-class vegetables, such as Peas, Beans and Asparagus, are also popular, in spite of their comparatively high prices. Asparagus is very plentiful, mainly from the Evesham district, and while prices are moderate for produce of medium quality, special bundles are making good figures. English Gooseberries are moderately plentiful and are meeting the competition of Dutch berries, which are an adverse factor from the home-growers' point of view. French Cherries and Spanish Apricots are increasing in quantity. Mushrooms are keeping in fair demand, but there is too large a proportion of broilers in those marketed. New Potatos are slightly better in request on Spanish supplies shortening. The trade in Cucumbers is fairly good consignments continuing to be heavy. English Tomatos are more plentiful, but their prices are still high, notwithstanding the imports of Tomatos from Holland. Salads are a quiet trade, although best grade Lettuces are in demand. Green vegetables are in fair request. Peas from the south of France are in very firm demand at prices which must be satisfactory to the shippers.

GLASGOW.

After maintaining a steady tone in the earlier part of the week, prices for cut flowers declined sharply and reached their lowest level on Friday. Deliveries continue to be irregular, and where delay in transit has occurred, many of the blooms arrive in a soft condition, while consignments that miss the market the one day are practically worthless by the following morning. Tulips were only worth 3d. to 7d. per dozen; ornatus and Pheasant Eye, 2/- to 4/-; and double white Narcissus, 4/- to 7/- Pyrethrums realised, 1d. to 4d. (small bunches) and 4d to 8d (large); Carnations 2/- to 4/- per dozen; Roses, 1/6 to 3/- per dozen; Dutch Roses, 2/6 to 3/- per bunch; Paeonies 3d. to 8d.; Sweet Peas, special 1/- to 1/3 ordinary, 8d. to 1/-; Lily-of-the-Valley (indoors), 1/- to 1/6, (outdoors), 3d. to 6d; Guernsey Irises, 4d. to 9d. for 6s'; Scotch: Irises, 9d. to 1/-; English Irises, 1/- to 1/9 per dozen; French Gypsophila, 1/- to 2/- per bunch; Richardia, 1/- to 4/-; Lilium longiflorum (Harrissii), 3/- to 5/-; and Asparagus Fern, 9d. to 1/6.

Prices for pot plants were steady, and there was a good demand. The value of Hydrangeas ranged from 1/6 to 3/6; Spiraeas, 1/- to 1/6; Marguerites, 1/- to 1/3; Geraniums (bedding), 5/- to 6/- per dozen; and Coltness Gem Dahlia, 4/- to 6/-.

The fruit market continues firm, and under the difficult conditions prevailing, business is better than might have been expected. A first consignment of Strawberries arrived from Cheddar on Friday, some ten days earlier than last year, and the berries were disposed of round 5/6 per lb. French Cherries made 12/- to 16/- per crate; French Apricots, made 6/- to 8/-; Spanish Apricots, 10/- to 12/-; English Black Hamburgh Grapes sold for 2/9 to 3/6 per lb; and Belgian Grapes at 2/- to 2/9. Murcia Oranges, special, 200's 240's and 300's were worth 22/- to 40/-; 360's and 504's, 16/- to 28/-; Valencia Oranges, 200's, 240's and 300's, 14/6 to 23/-; 360's and 504's, 14/- to 20/-. Prices for Oporto Rico Grape Fruit advanced to 40/- and 44/-. Other prices were: South African Pears: Winter Nelis and Glou Morceau, 6/- to 7/6 per box; Doyenné du Comice, 8/- to 10/6; New Zealand Apples: Jonathan and Delicious, 15/- to 17/-; Premier, Statesman, and Lord Wolseley, 13/- to 15/-; Australian Apples: Cleo, 14/6 to 17/-; Dunn's Favourite, 13/6 to 15/-; and Jonathan, 14/6 to 16/-.

The daily supplies of new vegetables are increasing in size and variety. Prices for English Cucumbers fluctuated between 5/- and 6/- per dozen. Scotch Cucumbers, 4/- to 6/-; Dutch Cucumbers, 3/6 to 4/6. English Kidney Beans realised 2/- to 2/3 per lb; Madeira Beans, 6/- to 7/- per box; Dutch Cauliflower sold for 4/- to 6/- per dozen; French Carrots, 1/- per bunch; Dutch Carrots, 9/- to 12/- per dozen bunches; Turnips, 1/- to 1/2; Cress, 2/6 per dozen; Mushrooms, 2/9 to 3/- per lb; Mint, 3/- to 4/- per dozen bunches; Spinach, 4/- per stone; and Teneriffe Potatos, 13/- to 15/6 per case. Ayrshire-grown Lettuces realised 6/- per dozen; English Lettuces, 2/- to 2/3 per dozen; and Dutch Lettuces, 5/- to 5/6 per crate. Tomatos were cheaper as supplies are increasing, Scotch fruit making 1/6 to 1/8 per lb; English, 11d. to 1/-; and Guernsey, 10d. to 11d.

GARDENING APPOINTMENTS.

Mr. H. Stevens, as Gardener and Estate Manager to A. F. BUXTON, Esq., Fairhill, Tonbridge, Kent. (Thanks for 2/6 for R.G.O.F. Box.—EDS.).

Mr. W. A. Bright, for the past four years gardener to JASPER KNIGHT, Esq., Bolney Court, Shiplake, as gardener to MAJOR CONINGSBY DISRAELI, Hughenden Manor, High Wycombe, Buckinghamshire. (Thanks for 2/6 for R.G.O.F. Box.—EDS.).

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No. 2059.—*SATURDAY, JUNE* 12, 1926.

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Actual Temperature—
The Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, June 9, 10 a.m. Bar. 29·8 Temp. 64°. Weather, Fine.

Memorial to Sir Isaac Bayley Balfour.

A communication from Sir John Stirling Maxwell, Sir David Prain and Mr. A. Grove to *The Times* on June 2, announces a change in plan or rather of locale with respect to the memorial to Sir Isaac Bayley Balfour. As our readers will remember, the memorial is to take the very apposite form of a garden dedicated to the memory of that great botanist and gardener and devoted to the cultivation of those plants the nature of which he did so much to elucidate. Doubtless among the plants which will receive pride of place in the garden are Rhododendrons and Primulas, for Bayley Balfour, though of the most catholic of tastes with respect to plants, seemed to hold these genera in especial esteem and, moreover, as is well-known, it is due in large measure to his foresight that the regions of Tibet were explored with results so rich in new Rhododendron, Primula and other species, and no less due to his scientific investigations of the new species that they were relegated to their right places in the systematic catalogues of systematic botany. The announcement now made by Sir John Stirling Maxwell and his colleagues is primarily to the effect that the Balfour Garden is not to be established at Glenbranter, as was originally proposed and rendered possible by the generosity of the Forestry Commission, but that the garden is to be situated on part of the neighbouring estate of Benmore which, owing to the generosity of Mr. H. J. Younger, is now a national possession. There, on the east side of the road leading from Dunoon to Loch Esk, will the Balfour Garden be placed. Those—and they will be many—who will wish presently to make pilgrimage thither will find their pious footsteps aided by the change of site. They will be able indeed to "take ship" by Clyde steamer to Kilmain pier, whence it will be but two miles to the garden. Yet another advantage which the new site has over the old is that it is already planted with numerous exotic trees of some fifty years' growth and hence those impatient first years when visitors see only a garden in the making will be less tedious. It may be added that the change of plan has the approval of Lady Balfour and also of Prof. W. Wright Smith, Sir Isaac Bayley Balfour's successor as Regius Keeper of the Botanic Garden in Edinburgh, in whose charge the Balfour Garden will be. Visitors to the Royal Botanic Garden at Edinburgh will see the memorial tablet erected to Bayley Balfour's memory and subscribers will be glad to know that the balance of donations which have been received will be devoted to the erection in the new garden of a shelter or rest-house within which there is to be a tablet recording briefly Sir Isaac Bayley Balfour's incomparable services to botany and horticulture. We trust that these admirable proposals will evoke a further and generous response from all those who knew and admired Bayley Balfour and his work. For our part we can think of no happier nor more suitable way of commemorating the man and his work. Memorials as a rule become defaced and dim as the years go on, but a garden—and especially one in such skilled charge—goes on augmenting in beauty with every year that passes. More aptly than any other will it serve to keep the memory green and fragrant.

Sturry Court.—Sturry Court, the beautiful home of the late Lord Milner, which Lady Milner has offered to the Royal Horticultural Society, was recently visited by the Franco-British Union of Architects, who are in this country holding their sixth annual general meeting. Sturry Court is a very historical building—a portion of a larger house which began with a Benedictine Abbot, and was associated with royal and other important personages, to Lord Milner. The village of Sturry takes its name from the River Stour which flows through the gardens of Sturry Court. These gardens were laid out by Lord Milner after he had bought the estate on his return from South Africa, and he found scope in his garden not only for relief from arduous public service, but to satisfy the beauty-loving side of his nature. Unfortunately, some of the Kent collieries are very near to Sturry Court, a coal pithead being within two miles of it. Those who are familiar with Kent will know that Sturry is in one of the most delightful parts of that beautiful county, not far from Canterbury with its famous Cathedral, and in the centre of a hop and fruit-growing neighbourhood. We need not be alarmed that the coal industry will spoil all the amenities of the "garden" county, for local councils, in conjunction with the county authorities, intend to utilise the Town Planning Act to the full in its endeavours to preserve them.

Poisonous Sprays—The great need for those who use poisonous insecticides and fungicides to place them out of the reach of other persons has been emphasised frequently in these columns. Mishaps, often with fatal consequences, arise from time to time through misadventure with poisonous washes. A sad case was recently reported in the Saffron Walden district where Mrs. Alice Cox, mother of an employee of Messrs. C. Engelmann, Ltd., the well-known Carnation growers, met her death through drinking nicotine in mistake for port wine. Her daughter placed a bottle of port wine on a shelf near to a bottle containing nicotine, which her son had used for spraying Roses. The two bottles were similar, and the nicotine being of the same colour as the port wine, the unfortunate lady drank the nicotine before she was aware of her mistake. The coroner returned a verdict of accidental death.

The Mosquito Plague.—Those who garden find probably more discomfort from mosquito bites than any other section of the community. The insects seem to be more numerous than usual this year, probably because the weather has been so moist; they are especially plentiful where grass has been allowed to grow uncut, and some mitigation of the plague may be obtained by using the scythe to keep grass and rank herbage under. In a letter to the daily Press, Mr. A. Moore Hogarth, Hon. Director of the College of Pestology, Bedford Square, W.C.1, advises painting the affected part with either colourless iodine or ether of iodine, and for badly bitten legs to lay gently on the affected parts a wet handkerchief. He considers it most important to check the almost irresistible desire to scratch, for he states that nothing is more mischievous than this form of injected poison when it is thoroughly rubbed into the flesh. We have found much relief from the use of the "blue" bag, and even by rubbing a piece of common soda on the bitten part.

Dr. Rottler's Herbarium.—In 1872, when Sir Joseph Hooker was preparing the *Flora of British India*, Sir Wm. Thistleton-Dyer brought to his notice the herbarium at King's College, London, collected by Dr. Rottler in Southern India between 1798 and 1805. At Sir Joseph's request, the Council of King's College generously agreed to transfer the collection to Kew and 1,918 specimens were received and incorporated in the Kew Herbarium. A further portion of the herbarium has now been discovered, containing two hundred specimens, and these also have been received and incorporated in the Kew Herbarium. The collection contains several type specimens with original holograph descriptions, but how it came to King's College has not been ascertained, although it is thought it was through Professor Henfrey, who was Professor of Botany at King's College from 1853 to 1859.

The Royal Gardeners' Orphan Fund.—We are asked by the Secretary of the Royal Gardeners' Orphan Fund to state that the postponed Annual Festival Dinner will be held at the Hotel Victoria, Northumberland Avenue, W.C.1., on Wednesday, July 14, next, at 6.30 for 7 p.m. As previously arranged, the dinner will be under the presidency of G. J. Nicholls, Esq., C.C., F.R.C.I. Contributions to the Chairman's List will be welcomed by the stewards, or may be sent direct to The Secretary, 19, Bedford Chambers, Covent Garden, W.C.2.

St. James's Park—Those hundreds of thousands of people who remember St. James's Park, London, only as it appeared during the war period, when the Government buildings—known as the Lake Dwellings—occupied the site of the lake, would not recognise this charming open space as it now appears in its beautiful, early-summer dress. The fine trees are a delight, as almost every one is a well-developed specimen—in marked contrast to the crowded examples seen in so many of the open spaces in Paris. The lake is filled with clear water in which the greenery of the trees is reflected, together with the rich colouring of the numerous plantations of tall, bearded Irises. Primula japonica is almost over, but Violas, also near the water produce a fine colour effect. On one corner of a shrubbery belt, near the bridge, Hydrangeas have been grouped in many varieties, and even the comparatively new and brilliant Parsifal is well represented. Garden-loving Londoners should visit St. James's Park at intervals throughout the spring and summer, as this open space has attractions distinctly its own and different to those of many other London parks.

Red Spider and Mildew Spores.—A correspondent who is a student at Albert College, Glasnevin, Dublin, requests us to publish the following observation with a view to discovering whether other research workers have noticed similar activities among red spiders:—"During a microscopical examination of mildewed Apple leaves, made a few days ago, I observed red spiders feeding on the spores of the mildew fungus; one, having apparently satisfied itself, began to collect spores on its legs, much in the same way as a bee collects pollen."

Horticultural College, Swanley.—Speech Day at the Horticultural College, Swanley, Kent, has been arranged for Thursday, July 22, and proceedings will commence at 3.30 p.m. The College is actually situated in the adjoining village of Hextable, in the centre of fruit farms, market gardens and nurseries, where crops are grown under glass for market.

Unusual Growths on Orchids.—Mr. Richard Ashworth, of Ashlands, Newchurch-in-Rossendale, Lancashire, writes:—"I have grown Orchids on a somewhat large scale for nearly thirty-five years, but have never previously come across similar incidents to the following two, which have happened just recently. I have a Laelio-Cattleya Epicasta var. The Premier with five pseudo-bulbs, leafed. The last-made pseudo-bulb is five-and-a-half inches high, and on the top of this, where the flower sheath usually comes, another pseudo-bulb has grown, an inch high, producing a leaf five-and-a-half inches long by one-and seven-eighths-of-an-inch broad, stout and sturdy. Thus, there is a pseudo-bulb on a pseudo-bulb. The other instance is a plant of Bifrenaria Harrisonae with eight pseudo-bulbs; the back pseudo-bulb, which must be at least eight years old and has no leaves, has sent up a flower. This also, to me, is unusual. Perhaps some of your Orchid-loving readers may have had somewhat similar experiences, but they are unique to me."

National Sweet Pea Society.—We would remind Sweet Pea lovers that the annual show of the National Sweet Pea Society is to be held at the Montpelier Gardens, Cheltenham Spa, on June 30 and July 1, next, in conjunction with the exhibition of the Cheltenham Horticultural Society. Entries for the N.S.P.S. show should be sent to the Secretary, Mr. A. C. Bartlett, 19, Bedford Chambers, Covent Garden, W.C.2, not later than June 23. The Secretary of the Cheltenham Society is Mr. Cyril Cassidy, 58, High Street, Cheltenham Spa.

R.H.S. Awards to Plants, Fruits and Vegetables.—The Royal Horticultural Society has published a list of Awards made by the Society to decorative plants, fruits and vegetables during 1911-1924, carrying on the list from the previous one published in 1911, which included plants certificated by the Society from 1859-1910. Since the last list was published, two new awards have been instituted; one, A.G.M., the Award of Garden Merit, given to plants on the recommendation of the Wisley Garden Committee, who judge them solely on the ground of their general utility and beauty as seen growing in the garden; the other, W.R.A., the Wisley Rose Award, given on the recommendation of the special Rose Committee to Roses after trial in the Wisley garden; the latter award is of two grades, I and II. Every second page in the publication is blank and should be useful for keeping the records up-to-date. As all who follow the R.H.S. meetings are aware, awards in recent years have been very numerous; the list includes no fewer than 110 Rhododendrons as well as large numbers of Primulas, Narcissi, Delphiniums, Dahlias, Chrysanthemums, Carnations, Asters, Antirrhinums and Roses. The number of Barberries that have received awards is twenty-two, and only one of these, namely Berberis Sargentiana, received a First-Class Certificate. Of fruits, Apples occupy the premier place, followed by Strawberries and Raspberries; several Melons also received awards during the thirteen years. It is interesting to notice that only one Pear, the variety Mrs. Seden, has been granted an award in the last fifteen years. Of vegetables, Lettuces and Peas figure most prominently in the lists of awards.

His Grace the Duke of Portland, K.G.—The owner of Welbeck Abbey is one of the most consistent and liberal patrons of horticulture and, fortunately, his regard for the art and craft of gardening is extended to those who practise it. In the year 1900, His Grace presided at the annual festival dinner of the Gardeners' Royal Benevolent Institution, so that his occupancy of the chair at the Festival dinner held at Grocers' Hall on behalf of the charity during the present week was not a new experience for him. His Grace has shown his interest in horticulture in many ways, and particularly in connection with the great International Horticultural Exhibition, held at Chelsea in 1912, when he was president and received the foreign and other visitors at his London residence in Grosvenor Square, when nearly six hundred guests were entertained. During the whole period of that wonderful exhibition the Duke of Portland placed his services entirely at the disposal of the directors.

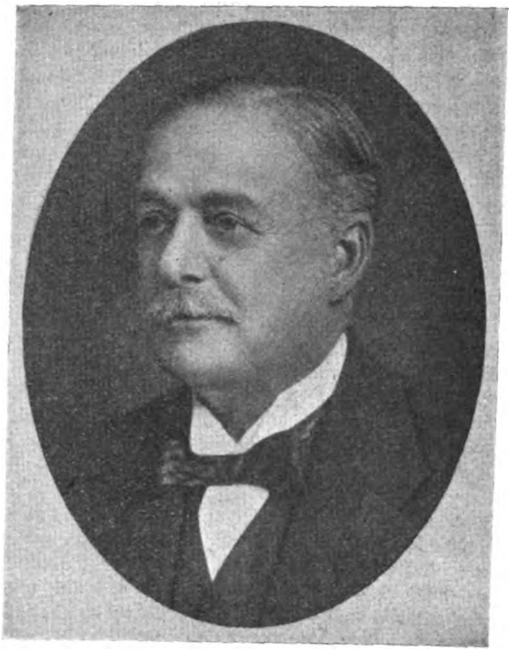

Photo Lafayette.

THE DUKE OF PORTLAND.

A Fastigiate Aspen.—The plants imported by the American Bureau of Plant Industry include a fastigiate Aspen, Populus tremula var. erecta. It was received from Svalof, Sweden, being found in the woods in the vicinity of Svalof, and strongly resembles the Lombardy Poplar, which is a very similar mutation of P nigra. Mr. D. Fairchild, of the Office of Foreign Seed and Plant Introduction, Washington, classes it as amongst the most interesting introductions recorded in the seventy-fifth inventory.[*] There is a weeping form of the Aspen, P. tremula var. pendula, but Bean in *Trees and Shrubs Hardy in the British Isles*, makes no mention of a fastigiate form.

The Library of the Linnean Society.—The report of the Librarian of the Linnean Society, presented on the occasion of the Society's annual meeting, provides interesting reading. The most important event of the year in connection with the Library was the publication of the new Authors' Catalogue, prepared by Dr. B. Daydon Jackson and Mr. S. Savage. The catalogue—reviewed in our issue of Nov. 7, 1925, forms a volume of 860 pages, and includes all additions to the Library during the twenty-nine years prior to 1925. We learn that the fitting up with shelving of one of the rooms on the top floor has relieved to a small extent the pressure for space in the main library, and there is still a considerable amount of shelving space available on the top floor. During the year 212 books, exclusive of periodicals, reprints, or continuations of works in course of publication were added to the library. The total number of periodical publications received by the Society is now 634. The following table gives an abstract of an analytic census of these publications as regards their continent of production:—

	By Exchange.	By Gift.	By Purchase.	Totals
Africa ...	13	5	—	18
Asia ...	35	37	1	73
Europe ...	238	78	74	390
North America	77	27	8	112
Oceania ...	11	12	—	23
South America	12	6	—	18
	386	165	83	634

Twelve new exchanges of publications have been established. A considerable number of donations of books has been received, and lists of such have been presented for inspection at each meeting of the Society. Amongst them was a large collection of books and pamphlets presented by Mr. A. D. Michael, of Studland. The distribution of nearly one hundred free copies of the new catalogue of the Library to scientific societies and institutions throughout the world has been of benefit in so far as it has led to the filling up of some of the gaps in the Library. A large number of reprints has also been received. The amount expended on the purchase of books and periodicals was £289 12s. 10d., of which £30 15s. 10d. was for books. The number of volumes bound was 436, at a total cost of £154 4s. 0d., or an average cost of just under 7s. per volume. The number of volumes borrowed from the Library during the year was 1,829. The stock of the Society's *Journal* (Botany) has been arranged in order, but the Librarian reports that no progress can be made in the arrangement of the stock of the *Journal* (Zoology) until storage racks are available. Once the stock of *Journals* is in order, it should be possible to prepare and keep a proper stock account and a proper sale-price list of all available volumes and parts of volumes.

Freesia Trials at Wisley.—The Royal Horticultural Society is making arrangements to carry out a trial of Freesias in their Gardens at Wisley during the coming season. Five corms of each variety for trial should be sent to reach the Director, R.H.S. Gardens, Wisley, Ripley, Surrey, on or before July, 15, 1926.

Letchworth Garden City.—On Wednesday last the Duke of York visited the garden city of Letchworth, Herefordshire, in connection with the local civic week. His Royal Highness, in replying to the toast of his health, said the people of Letchworth had set out to find a solution to one of the great problems of the age, and from what he had already learned about their progress it appeared that they had achieved no small measure of success. The whole conception of what might be called "the factory in the garden" movement was destined to produce something much greater than its pioneers imagined, for the influence of Letchworth reached far beyond the confines of the town.

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[*] *Inventory No.* 75. United States Department of Agriculture.

Buildings of Straw.—In France compressed straw is being used, as a substitute for the conventional materials for building purposes. The straw is pressed into "panels," which generally measure nine feet by six feet, by two inches in thickness, and are bound lengthwise with wire strands six inches apart. Being highly pressed and bound with wire, the panels of straw have been found to be fire-proof. So far, the straw panels have been used chiefly for the walls and ceilings of bungalows, and as they are sound-proof, they are also suitable for telephone cabinets. The surface of the panels is said to be excellent for retaining plaster and stucco work, as they lend themselves to artistic decorations.

Leather-Jackets in Gardens.—Tests carried out at the Seale-Hayne Agricultural College (*Second Annual Report*, Pamphlet No. 19), indicate that naphthaline, albeit an admirable specific for the destruction of leather-jackets (larvae of Crane Flies), is not so successful when used in land under such garden crops as Strawberries. In these latter cases it is found that a fairly efficient means of keeping down these pests consists in a poison bait made of Paris Green, one pound, bran, twenty-five to thirty pounds, and water, one gallon. If the bait is laid twice, at intervals of ten days, the damage done by leather-jackets is almost completely prevented.

Fruit and Vegetable Crops in France.—The Ministry of Agriculture has received the following report on the condition of the undermentioned fruit and vegetable crops in France, dated the 19th May :—Strawberries : There is an abundant crop of this fruit, but the quality is expected to suffer should the present bad weather continue. Crops are superior in quantity to those of last year. The export to foreign countries has commenced. Cherries : The bloom was the most wonderful seen for many years, but, owing to the heavy rains and cold weather, the crop is very mediocre and inferior to that of last year. There is also the question of labour which it is very difficult to find for the picking of Cherries. Export has already commenced. Green Peas : There is an abundant crop of Peas in France, and the heavy rains have added to their quality. Crops are more important than those of last year and the quality superior. The export of Peas has already commenced. Apricots, Plums and Peaches : Good crops of these stone fruits were foreshadowed, but it is feared that the heavy rains and cold weather during the month of May will considerably reduce the quantity below the estimate. In any case, Peaches and Apricots will probably show better results than last year, which produced very poor crops. The vegetable crops in general are abundant, and the high prices ruling have encouraged the growers to increase production. The heavy rains have been beneficial, but crops have been somewhat retarded by the cold weather during May.

Flowers of Sulphur.—An interesting illustrated article on the production of flowers of sulphur, which is largely used by gardeners as a fungicide, is given by Professor Henry R. Greenish, in *The Pharmaceutical Journal and Pharmacist* for May 29. The crude sulphur used is either Silician or Louisiana sulphur. It is placed in a retort over a coke furnace. When the charged retort is heated, the sulphur melts (at about 114°C.) and vaporises at a rather higher temperature. The vapour passes through the neck of the retort into a condensing chamber and falls on the floor of the latter as a bright, yellow powder. A portion of the deposit adheres to the walls as flattened masses, sometimes as much as three inches long and one-and-a-half inch wide near the top, tapering to a narrow base. The beautiful appearance of these masses has earned for them the name of "flowers" of sulphur. The heating of the condensed sulphur is continued for a fortnight, when the sulphur is pressed through sieves. The fine sulphur obtained by sieving requires no further preparation, but is transferred to bags or lined casks for sale.

Hydrangeas as Market Plants.—A well-formed Hydrangea makes an ideal plant for a dwelling-room and since the raising of new and much improved varieties in recent years, Hydrangeas have constituted one of the most important subjects in the pot-plant trade, for market growers have not been slow to realise the public demand for them. Blue is a favourite colour, but those in shades of pink are also very popular, and of the latter the deep pink Parsifal is grown very extensively. It is surprising how splendidly these plants are grown and flowered by trade cultivators and even in small pots. The specimen illustrated in Fig. 212 is growing in a large 60-sized pot ; it had five beautiful inflorescences and was one of a very large number sent to market by Mr. Philip Ladds, to whom we are indebted for the opportunity of photographing it.

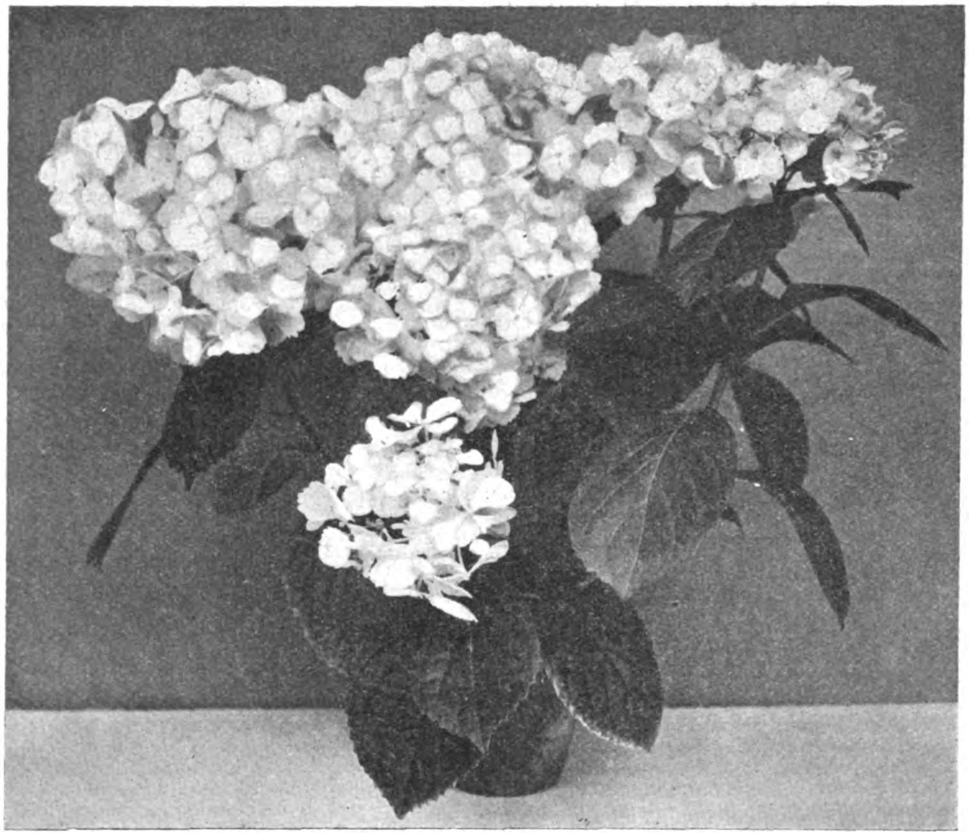

FIG. 212.—A MARKET PLANT OF HYDRANGEA IN A LARGE SIXTY-SIZED POT.

Appointments for the Ensuing Week.—Monday, June 14 : United Horticultural Benefit and Provident Society's meeting. Tuesday, June 15 : Royal Horticultural Society's Committees meet (two days) ; Winchester Gardeners' Association's meeting. Wednesday, June 16 : Yorkshire Flower Show (three days) ; Royal Gardeners' Orphan Fund meeting ; Royal Norfolk Agricultural Association's horticultural show (two days).

"Gardeners' Chronicle" Seventy-five Years Ago.—*Gardeners' Benevolent Institution*.—The anniversary of this charity was celebrated on Monday by a dinner at the London Coffee House. The object of the Institution, as many of our readers are aware, is to relieve by pensions persons who have been gardeners, and who from age and infirmity have become incapable of earning a living. To assist in the promotion of this object, some one hundred-and-twenty gentlemen assembled under the presidency of Joseph Paxton, Esq., the designer of the Crystal Palace, among whom were most of the principal horticulturists and market gardeners of the metropolitan district, together with many of the *elite* of the literary world, Messrs. C. Dickens, Douglas Jerrold, Mark Lemon, Wills, and other prominent public writers being present at the principal table, and taking part in the proceedings of the day. The dinner was all that could be desired, and the dessert, which was for the most part supplied by the subscribers of the Institution, was magnificent, and included some splendid Pines from the Pineries of the Dukes of Devonshire and Sutherland ; Peaches, Grapes, Strawberries and other products of the skill of the most famous growers of the country. The cloth having been removed, the Chairman gave, as the first toast, "The Queen," which the company responded to with enthusiastic loyalty. The next toast, "Prince Albert, Albert Prince of Wales, and the rest of the Royal family," was also received with loyal honours, and in proposing it the Chairman took occasion to say of Prince Albert that he deserved well of the country in having carried out through evil report and through good report and amid difficulties of no ordinary kind, a project so grand that the world had never before seen the like (cheers), and when history should record the events of these times, his Royal Highness's name would stand prominently forward as that of one who in his day nobly and successfully fought the battle of social progress and improvement (much applause). *Gard. Chron.*, June 14, 1851.

[The list of subscriptions, announced by the secretary, amounted to nearly £300, and included donations from the Duke of Devonshire, the President, the Chairman, Dr. Lindley, Messrs. Fox and Henderson, Messrs. Bradbury and Evans, and Charles Dickens.—Eds.]

Publications Received.—*Lime in Agriculture.* By Frank Ewart Corrie. Chapman and Hall, Ltd., 11, Henrietta Street, W.C. 2. Price 3s. 6d. net.—*Every Man his Own Gardener.* By John Halsham. Hodder and Stoughton, Ltd., Warwick Square, E.C. 4. Price 6s. net.—*Goldfish Culture for Amateurs.* By A. E. Hodge and Arthur Derham. H. F. and G. Witherby, 326, High Holborn, W.C. Price 5s. net.

The Week's Work.

THE ORCHID HOUSES.

By J. COLLIER, Gardener to SIR JEREMIAH COLMAN, Bart., Gatton Park, Reigate, Surrey.

Platyclinis filiformis.—Plants of this pretty species are fast sending up their thread-like flower stems and will now be benefited by daily syringing overhead until the flowers are open. The plants should be repotted when the flowers are past and so soon as new roots are observed to be pushing from the base of the partly-developed growths. This Orchid is best grown in pans and suspended from the roof in a shady position, in a house with an intermediate temperature. A compost consisting of equal parts of chopped Osmunda fibre and Sphagnum moss is suitable as a rooting-medium. Freshly-potted plants should be watered carefully, merely sprinkling the surface of the compost to keep it moist, and afforded a little extra shade until they have become re-established. When they are well-rooted in the new compost, the supply of water should be increased and the plants syringed overhead all through their growing period, taking care to wet the undersides of the leaves as a means of warding off attacks of red spider.

Platyclinis glumacea, P. Cobbiana and P. uncata.—When these species have finished their growths very little water will be needed at the roots, although the plants should not be allowed to suffer from excessive dryness.

Sobralia.—A few of the best species and hybrid Sobralias include S. macrantha, S. xantholeuca, S. Veitchii, and S. Colmanae. As a rule they are strong, vigorously-growing plants, and produce a large number of fleshy roots, which render top-dressing difficult. As the plants cease flowering they should be examined, and any that are found to have produced shorter stems than was the case last season, or to have otherwise deteriorated should be repotted. Small specimens may be transferred to larger receptacles without disturbing the ball of roots, but large examples should be broken up and each piece potted singly, or several portions may be placed together to form specimens of the desired size. Plants that do not need repotting may have a few of the old "reeds" removed, which will help to divert more vigour into the young shoots. If such plants have filled their pots with roots, they will be benefited by occasional waterings with weak liquid manure made from cow dung. These plants grow well in a cool intermediate temperature

THE KITCHEN GARDEN.

By F. STREETER, Gardener to LORD LECONFIELD, Petworth Park, Petworth, Sussex.

Cos Lettuce.—On hot, dry soils special precaution must be taken to ensure the best results with Cos Lettuces. I strongly advise preparing small trenches similar to those for Celery, only much closer. Fill them nearly to the top with well-decayed manure and place several inches of fine soil on the surface. Draw a shallow drill in which to sow the seeds thinly. Give this crop plenty of water at all times.

Onions.—Onions intended for exhibiting will require considerable attention. Keep down all weeds and stir the soil with a Dutch hoe at least once a week. Give the crop a slight dressing of a reliable vegetable manure about every twenty-one days. In hot weather damp the plants overhead every evening and keep the stems perfectly straight. Care must be taken when working between the plants that the "pipes," or foliage, are not injured in any way, also the hoe must not touch the young bulb. With the main sowings a slight thinning is necessary where the plants are too thick. Keep the rows free from weeds and if the ground has been well prepared it will be found best to give no stimulants in order that the bulbs may be as hard as possible. If from any cause the bed is patchy, fill the blank spaces at once with the thinnings, watering them well in.

Celeriac.—Select rich, open, very firm ground for this crop. Make the rows two feet apart and set the plants eighteen inches asunder in the rows. Lift and plant the seedlings with large balls of soil at the roots. Give the crop a good dusting of soot and a liberal soaking with water; plenty of water should be supplied to the plants during their growing season.

Potatos.—Keep the soil well-stirred between the rows and earth up the stems immediately they are fit, leaving the centre of the ridges fairly open and not drawn together. A liberal dressing of soot will be beneficial to the crop; keep the haulm upright at all times. The earliest varieties here are furnishing good, clean tubers, just fit for table use. They were planted on March 26 on a south border.

Peas.—The final sowing of Peas should be made soon. Select varieties that are known to withstand mildew; early and quickly-maturing sorts are undoubtedly the finest for late cropping. Make the rows in an open situation, stake and mulch the seedlings and give them every encouragement to develop quickly. Peas are growing very strongly this season, so far, owing, no doubt, to the damp weather. Pinch the tops of some of the maincrop sorts if the plants are not coming into bearing quickly.

HARDY FRUIT GARDEN.

By W. AUTON, Gardener to VISCOUNT ELVEDEN, Pyrford Court, Woking, Surrey.

Plums.—The thinning of the fruits on standard orchard Plum trees is not generally practicable, and where heavy crops are being carried timely support should be given to branches which need it. The fruits of dessert varieties grown on walls or espaliers should be gradually thinned to reasonable numbers, if this is necessary, so that the individual fruits may be of good size. It is not wise to force the trees unduly before the stoning period, but when this stage is passed, liberal applications of dilute liquid manure, or other suitable fertiliser, should be given. Mealy aphis often attacks Plums on walls at this season, collecting on the under surface of the leaves in dense masses. Their excreta dropping from the leaves on to the fruit below, causes a black, sticky deposit, spoiling their appearance. A sharp watch should be kept for the pest, and immediate steps taken to combat it on its appearance.

Figs.—Continue the laying in of wood for furnishing the future tree, removing as early as possible any very gross shoots and those for which there is not sufficient room for development. The Fig is essentially a sun-loving plant, and to obviate crowding and consequently shaded and unripened wood, plenty of space should be allowed the young growths. Older trees should be afforded every encouragement to make new growths from the base, with a view to replacing old and worn-out growths. Where trees are established and in good condition they will be making short-jointed wood and very little pinching will be necessary, but where growth is inclined to be too vigorous it should be checked by moderate pinching.

Loganberries.—There are several kinds of Brambles as well as the Loganberry which need similar treatment. They are now making vigorous growths and as these growths are the canes on which next year's fruit will be borne, care should be taken to preserve them from injury. Retain only sufficient to furnish the available space, removing entirely weakly and unwanted growths. Tie these loosely to the wires or supports so that they do not overhang the canes bearing the current crop.

Sweet Cherries.—Trees of Napoleon Bigarreau, Rivers' Early and other varieties growing on walls are carrying good crops of fruit, and care should be taken that the foliage is kept healthy and free from aphis. On light soils frequent waterings will be necessary to assist the swelling of the fruit.

Vines.—To obtain good results with out-door vines, timely attention should be given to detail work. Continue disbudding, removing all unnecessary shoots and stopping those bearing bunches at the second leaf beyond the bunch to concentrate the energies of the plant upon the crop. See that the roots are kept sufficiently moist, particularly if the border is a well-made, restricted one, and feed them occasionally with liquid manure or other stimulants.

Strawberries.—The propagation of Strawberries, whether for making new plantations outside or for procuring forcing plants, is effected by layering the runners so soon as they are large enough to handle, and the earlier rooted plants can be obtained the better for both purposes. It is usual to layer from maiden plants, and if the flower stalks have been removed from these as they appeared the runners will now be ready for layering. Use sixty-sized pots as they are easily removed from the beds when the runners have rooted. Let the compost used be fairly rich and light to encourage the runners to root freely. Fill the pots, making the soil moderately firm, and press the growing point of the runner into the soil in the pot, fixing it with a wire or wooden peg; partially ripened Bracken stems make excellent pegs for this purpose. See that the plants do not suffer from lack of moisture at any time.

Currants.—All shoots of Red and White Currants which are not required for wood extension should now be pinched; this will allow light and air to reach the fruits, enhancing their flavour and appearance.

Peaches and Nectarines.—These trees have set very satisfactory crops of fruit, but, owing to the abnormally cold weather experienced in the past month, they are not swelling so fast as one could wish. Disbudding should not be done too severely while growth is slow, but frequent syringings should be given to keep the foliage clean and free from pests. Remove any suckers which may appear from the roots in the first stage of their development.

Trained Trees.—Espalier or cordon-trained Apples and Pears which have not yet filled their allotted space will need attention with regard to the training of the leading growths. It is important that this should be done as the growths develop and before they become too woody and brittle, or it may not be possible to lay the shoot exactly where it is required, and the symmetry of the tree will be impaired. Trees which have filled their allotted space and are making too many shoots from the spurs may, with advantage to the tree, have some of them removed to prevent crowding.

FRUITS UNDER GLASS.

By T. PATEMAN, Gardener to SIR CHARLES NALL-CAIN, Brocket Hall, Hertfordshire.

Late Vines.—The latest vines have set their berries and the bunches should be ready for thinning. As a rule, several varieties are grown in the late house, and a little care is necessary when the operation of thinning is being carried out. The berries of the different varieties vary in length of stalk, and those that produce large, round berries on short foot-stalks need severe thinning, but if the long-stalked varieties were to receive this treatment the berries would have a loose appearance which would spoil the symmetry of the bunches. In thinning Grapes take full advantage of any dull weather to get this important operation carried through safely. After the Grapes have been thinned the border should receive a fair dressing of a suitable vine manure, which should be well-watered into the soil. If the vines are growing in well-drained borders see that the roots are freely supplied with moisture during the period when the berries are swelling. Hasten the development of late vines by closing the house as early as the aspect will allow, to make the fullest use of solar heat; if fire-heat is not employed, air should be admitted to the vineries early in the morning to allow the condensed moisture to evaporate before the sun shines strongly, or the foliage will be liable to scorching.

Late Peaches and Nectarines.—Late Peaches and Nectarines should receive their final thinning before the actual stoning takes place. While every care is needed that none of the trees are too heavily cropped—for over-cropping not only over-taxes the tree for the ensuing year, but the fruit will be very much undersized—it is also an error to thin too severely, otherwise trees that are growing in well-drained borders will tend to produce coarse wood which is not desirable. As a guide in thinning, Peaches should be allowed a space of twelve inches each way, while Nectarines may be allowed only nine inches. It is sometimes desirable to give stone fruits a slight dressing of lime, while soot water will prove beneficial during the growing period. Keep the borders well supplied with moisture, for any approach to dryness in the soil will favour the spread of thrip and red spider, and once these pests get established on the trees there will be great difficulty in eradicating them. Syringing the trees in hot weather will tend to keep both these pests in check. Continue to tie in the young shoots and be careful that they are not crowded.

General Remarks.—By this date the pressure of work in the fruit houses will have been passed and it is during this slack period that the grower is apt to overlook small details. The fruit grower must always have a watchful eye for the many small enemies that destroy the season's crops.

PLANTS UNDER GLASS.

By JOHN COUTTS, Assistant Curator, Royal Botanic Gardens, Kew.

Zonal Pelargoniums. — Stock propagated earlier in the year to provide plants for winter flowering should now be stood out-of-doors on a bed of ashes in an open, sunny position, in order that the growths may be firm and well ripened. Strong shoots should be pinched, and all flowers removed up to a few weeks before the plants are required to flower. These Pelargoniums should be removed to a warm, airy greenhouse about the middle of September. In the country they are extremely useful during the autumn and winter, but in the immediate neighbourhood of London they are almost useless for winter-flowering, as one night's fog is sufficient to ruin them.

Gilia coronopifolia.—Seeds of this beautiful biennial should be sown about the middle of June in a cool greenhouse. The seedlings should be pricked off into pans or boxes and grown in boxes until they are large enough to be placed in thumb pots. At a later stage they should be transferred to sixty-sized pots in which they should be wintered. In common with many other Californian plants, this Gilia is apt to suffer from our damp, sunless winters. For this reason, it should be grown near the roof-glass in a warm, airy greenhouse. During the winter the plants should be given no more water at the roots than is necessary to keep them from suffering. Early in the new year they should be ready for shifting into larger pots; if care is exercised in watering, it is desirable at this stage to transfer them direct to their flowering pots, which should be six inches in size. Well-grown plants should attain a height of four feet to six feet, and flower about twelve months from the time of sowing.

Rehmannia angulata.—Seeds of this useful plant should also be sown about the middle of June in a cool house or cool frame. The successful cultivation of this plant presents few difficulties as it grows freely in any good potting compost. The young plants should be potted on as they require it; they are generally wintered in five-inch pots in cold frames, where they can be kept free from frost. Early in the New Year they should be ready for potting on; well-grown specimens usually require eight-inch pots when of a flowering size.

Euphorbia pulcherrima (syn. Poinsettia).—About the middle of June, cuttings of Poinsettias should be secured from plants that have been previously started into growth. The cuttings should be about four inches in length and taken off with a heel, dipping the cut end into finely powdered charcoal to prevent bleeding. The cuttings are best inserted singly in thumb pots, plunging them in a warm propagating case. Care should be taken that they are never allowed to flag. To cultivators who have not much bottom heat at command I would advise propagating by cutting the old stems into lengths of three or four inches; they root readily and in my experience, make just as good plants. When rooted they should be stood on a bench near to the roof-glass. Repotting should be attended to and the plants accustomed to cooler conditions gradually until September, when they should be moved into a warmer house; they require strict attention as regards watering and feeding in order to retain the bottom leaves. Where large plants are required, a quantity of last year's stock should be cut hard back; they will develop about three strong shoots, and such plants are very useful for standing in the beds. While the ordinary type is most useful for decorative work, the rose-coloured and white varieties may be grown for variety and contrast.

THE FLOWER GARDEN.

By F. C. PUDDLE, Gardener to LORD ABERCONWAY, Bodnant, Taly-Cafn, North Wales.

Watering.—Now that the majority of the summer bedding plants have been placed in the beds and borders, the advent of dry weather will entail constant attention in watering. There is a widespread belief, especially amongst amateurs, that watering during sunny weather is injurious to the plants, and that scorching of the foliage may result. This latter is a fallacy, for when water falls on the warm leaf surface during sunny periods it immediately commences to evaporate, whereas scorching occurs when the leaves are considerably cooler than the surrounding atmosphere, and moisture condensing on them forms a lens; in other words, scorching results from condensation, and not during evaporation. What really happens when the foliage of a plant is wetted during sunny weather, is that the stomata expand, and more rapid transpiration is set up; if the roots are dry, the plant parts with more moisture than it can assimilate from the soil, consequently distress follows. This phenomenon may be observed when light showers occur during a time of drought. After the rain has ceased it will be noticed that many plants are flagging badly, owing to the rain not being sufficient to penetrate to their roots, and in such cases the shower has done more harm than good. If, however, the soil in which the roots are growing is well-soaked no harm will accrue from wetting the foliage during sunny weather, provided the water used is not unduly cold. Watering during the evening has its advantages, and when it can be done thoroughly, it is no doubt the best time to water, but it is a better practice to give the plants a thorough soaking during the daytime, rather than to rely on mere sprinklings during the evening. Rock gardens, and sloping beds or borders are more efficiently watered by means of a fine spray running over an extended period, so that only sufficient water is applied to soak into the ground, and not enough to run off as would be the case if a hose with a coarse rose were used. There are many appliances on the market suitable for this purpose and in the rock garden a fine spray may, with advantage, be left running all night during hot, dry weather. There is no doubt that much of the success of the famous rock garden in the Edinburgh Botanic Gardens is due to the very efficient system of watering in this way.

FOR NORTHERN GARDENERS.

By A. T. HARRISON, Gardener to the MARQUIS OF AILSA, Culzean Castle, Maybole, Ayrshire.

Brussels Sprouts.—Seedlings of this vegetable raised from early sowings should be planted on ground that is in good condition but not recently manured. The soil should be made firm by treading, and plenty of space allowed between the plants; a good plan to ensure these strong growing Brassicas plenty of room is to plant an earlier-maturing crop, such as Cauliflowers, in alternate rows made two feet apart, so that when the Cauliflowers are cut and cleared away the rows of Brussels Sprouts will be four feet apart. This method not only produces heavier crops of good quality, but enables the sprouts to be gathered without getting wet nearly to the waist in rainy weather.

Cauliflowers.—Cauliflowers of the Eclipse and Autumn Giant types should also be planted early, as they require a considerable time to form hearts. These strong-growing and leafy varieties also require plenty of room, and thirty inches apart each way is none too much, if first quality produce is to be obtained. During dry weather all recently-planted crops should be watered thoroughly and the loose soil moved to cover the damp earth to prevent it cracking and baking around the stems of the plants. Earlier varieties of Cauliflowers are forming hearts, and the latter should be protected from the sun's rays by breaking some of the leaves over them.

Potatos.—The soil between the drills of late Potatos should be well-stirred, either by the Planet Junior implement or by a digging fork, and while the soil is neither too wet not too dry, it should be moulded up to the stems, forming a ridge to cover the young tubers. This ridging or moulding up should be done carefully, as not only does it protect the tubers from the weather, it has been proved that when plants are well-earthed up they do not suffer so much from Potato disease. Early Potatos are quite ready for use, and no time should be lost in selecting medium-sized tubers for seed, as the sooner these are secured and ripened by exposing them to the sun and air, the earlier will be the resulting crop next season.

Thinning of Hardy Annuals.—This is an operation that is too often neglected, and should be performed so soon as the seedlings are large enough to make a selection; the first thinning should leave the plants from three inches to four inches apart, and when these have developed some should either be transplanted or thinned again, leaving each plant plenty of space according to the requirements of the various kinds. Annuals are frequently despised as weedy things, from no other reason than that they are left overcrowded, and not given the opportunity to grow into robust specimens.

Vines in Cold Houses.—The vines in cold houses are safely past the flowering stage, and where care has been taken to ensure the berries setting freely, the latter will soon swell sufficiently to enable a selection of the best bunches to be made. Small and badly-placed bunches should be removed forthwith, and the final selection decided before the operation of thinning the berries commences. Secure the laterals to the trellis, and where they are likely to become crowded, remove the superfluous growths, allowing each lateral sufficient space to develop its leaves without crowding. The growth of the sub-laterals should also be restricted by pinching out the tips of those behind the bunch at the first leaf, while the leading laterals beyond the bunch may be allowed to make two or three leaves before stopping them. Continue to close the vineries fairly early in the afternoon in order that every advantage may be taken of solar-heat.

ROSE GARDEN.

THE PURPLE SHOOTS OF ROSES.

IT is interesting to note that while nearly every Tea Rose has purplish young foliage and stems and in many the colouring is almost transparently beautiful, it is only in a few, and very few, H.P. varieties that the young foliage is even slightly tinted. For the most part the older type bears substantial leaves of a sober green.

This quality of colour in the young foliage has been transmitted very generously to the relatively newer race of H.T. Roses. But even so, it is variable, and while many varieties possess it to a marked degree, others more nearly approximate the H.P.'s in this respect This purplish colouring of the young foliage and stems is particularly valuable in the scheme of garden decoration in a late season such as the present. Except for a few of the earlier climbing Roses and several species—of no great garden value—Roses are late in coming into flower this year. But nature seems to have compensated with the really brilliant tints of the young foliage of many of the H.T. varieties. A bed of Moonlight, for instance, with the rays of the setting sun breaking through the robust shoots of vivid purple, present as great an attraction as any bed of flowers could well show.

That valuable variety Lady Pirrie also possesses the gift of richly tinted young foliage, and its stems and spines share in the beauty. This variety, with some others, Mrs. H. G. Grosvenor, The Adjutant, General McArthur and Vanity Fair, for instance, seem to retain the desirable colouring longer on the mature foliage than do the majority. The upper portions of the shoots of Princess Mary, Grace Darling, Hadley, Mrs. Oakley Fisher and Hawlmark Crimson, to name a few examples, are exceedingly beautiful in this respect when the growth is young, but lose it with maturity.

The China Roses are well endowed with the beauty of their young foliage, and of these one of the best in this respect is Fabvier, which also may well be termed the best of the crimson China Roses.

Generally, the climbing Roses are deficient in foliage beauty, but a marked exception is Gruss an Teplitz which, during the early season, has most lovely young shoots, and is attractive in this respect throughout the season. Coton Pearl has decided claims in this respect, as also has the less vigorous Rubin. Some other climbing Roses, Gardenia, Ariel, and Effective, are amongst the most showy, for their young foliage is lightly tinted with purple, but as a general rule the true climbers have green foliage. *A. C. B.*

ROSE MISS HELYETT.

THIS is one of the earliest flowering of the climbing Roses, and at the beginning of June an example on the arches between the herbaceous ground and the rock garden at Kew was in full beauty. It is of vigorous habit and produces large trusses of double flowers, much the shape of the old Cabbage Rose when fully matured. The colour is a blush pink and the flowers have a delicious fragrance.

ROSA HARDII.

REFERRING to the interesting note on this rare Rose on page 397, I fancy that it is probably a little more hardy than is suggested, for there is a goodly-sized bush, quite four feet in height, on the rock garden at St. John's College, Oxford. I was told that it was planted a dozen or more years ago, and its appearance fully justifies this statement of age. It is quite happy in the rock garden, which, as a thoroughly well drained soil is essential, seems to be the right place for this Rose in our country. I have not seen the St. John's College specimen when in flower but, judging from Mr. Prince's pretty little plant at Chelsea, which I did see, it must be uncommonly beautiful. *A. P. B.*

TREES AND SHRUBS.

COTONEASTER CONGESTA.

THIS is one of the most charming and useful of its race, a dwarf, compact evergreen with bluish-green leaves and an inclination to arch its branches or grow into a dense, low bush. But, apart from those recently introduced from China, there seems to be a wide variety of forms of this species. In addition to the type (which it is difficult to believe is a form of C. microphylla as regarded by some authorities) there is the more erect, loose-habited, larger-leaved kind usually sent out as C. pyrenaica, and one I saw recently in a neighbour's garden had mounted up into a dome-shaped bush, some five feet high and through, and so dense and even that it looked as though it had been clipped.

Yet another which one rarely sees and which is perhaps the most engaging of all, is so prostrate that it creeps about as closely as Ivy. The branches of this variety do not rise much more than an inch or two, and they will soon envelop a large rock with a clinging carpet of glaucous green. It is surprising that a subject so unique among its kind, so beautiful and eminently useful as this latter, has not found its way into the trade.

FABIANA IMBRICATA.

THOUGH generally considered tender, this shrub has never been injured by frost here; last winter specimens in the open were subjected to 20° of frost. It is however, a subject for light, stony soils, and an open, elevated situation. Strong specimens growing in good loam and close to trees have been all but killed, whilst others in poorer ground and fully in the open have escaped injury.

F. imbricata is an old shrub in gardens, having been introduced from Chile nearly one hundred years ago. The average height is about five feet in favourable districts; the bright green, Heath-like foliage and numerous white trumpet flowers with which the elegant branches are adorned in May and June, are singularly attractive. F. imbricata is a shrub that associates well with Heaths, especially those which flourish in loam that is on the light and dry side. Propagation is easily effected by means of cuttings struck in the later summer.

VITIS STRIATA.

VITIS (syn. Cissus) striata, or Ampelopsis sempervirens, as it is often listed, is a light, slender-growing climber of elegant habit, with smooth, dark green leaves about two inches across, composed of fine obovate leaflets. This foliage is produced freely and is very attractive; in favourable climates the greenish flowers are followed by small purple berries.

This very useful and charming little Vine is not often seen, even in those gardens of the west coast where it would do so admirably. It is one of the very few members of the genus which is evergreen, and this, of course, is much in its favour, where a climbing plant, with tendrils, is needed for covering low walls, stone balustrades or pillars.

Being a native of Chile and Uruguay, V. striata is, as I have inferred, not quite hardy, but it will winter as a wall plant in most places, and when cut back by frosts will usually break away from the base. I have seen it doing well covering the top of a retaining wall, in a north Wales garden near the sea, the foliage remaining uninjured after a severe winter. *J., North Wales.*

SOME EVERGREEN CLIMBERS.

COCCULUS trilobus (syn. Thunbergii) is a most interesting, free-growing, evergreen climbing plant, and it is surprising that it is so seldom seen in gardens. It is suitable for training on walls or up pillars. Its twining shoots and deep green, ovate lanceolate leaves are most useful for many forms of decoration. It has proved to be hardy in the southern counties. Planted on a north wall in a garden in Berkshire, it was not damaged by frost, although Garrya elliptica growing near by suffered badly from frost on several occasions.

Owing to its rapid growth, a large expanse of wall may be covered by this plant in a few seasons Young shoots may be layered into the border if desired, to assist the spread of the plants.

This Cocculus grows freely in any good well-drained soil; an ideal rooting-medium consists of a mixture of turfy loam, leaf-mould and coarse sand.

Muehlenbeckia complexa is hardy only in the south, unless grown in very sheltered positions. It is a very graceful twining shrub.

The leaves are small and roundish, having the appearance of dark green Maidenhair Fern. The wiry stems form a dense interlacing mass. This plant is most useful for covering water pipes on dwellings and buildings, or to cover any unsightly object in sheltered corners, owing to its dense growth, which is more pleasing in appearance than Ivy. This shrub was introduced from New Zealand in 1870. It grows freely in sandy loam in a sunny position.

There are small, handsome, variegated varieties of Elaegnus well-suited to growing on walls in sheltered places, also for gardens in the south-west coast. They have undivided leaves which, as well as the young shoots, are clothed with silvery scales. The flowers are inconspicuous, although very sweetly scented.

E. pungens and E. glabra have beautiful gold and silver variegated foliage. E. macrophylla bears large leaves which are dark glossy green above and silvery beneath; the flowers of this species are produced in October. E. angustifolia, the Oleaster of gardens, is perhaps the hardiest of all the species. The yellow flowers are succeeded by red, drupe-like fruits in late summer. *Colin Ruse.*

LONICERA FRAGRANTISSIMA.

THIS Honeysuckle is a most desirable winter-flowering shrub, and should not be omitted from the smallest of collections. It is not fastidious as to soil or position, but succeeds best when given the shelter of a south or west wall: to realise its full beauty, it should not, however, be trained to the wall but allowed comparative freedom.

The flowers are produced early in February before the leaves are developed; they are white and deliciously fragrant. *Ralph E. Arnold.*

GENISTA GLABRESCENS.

A YOUNG plant of this little Broom, put near the top of a retaining wall a year or two ago promises to be one of the most delightful of its kind.

It is a dwarf, deciduous species from the higher altitudes of the Lepontine Alps, and does not appear to grow much above two feet. It makes a neat, spreading bush, and yields in April or May a profusion of flowers in clusters at the joints of the past season's growths. The blossoms are large for so small a plant, being well over half-an-inch long, and they are a good rich yellow.

Often listed as Cytisus glabrescens, this charming species is deserving of a much wider popularity than it has thus far enjoyed. It is perfectly hardy. *W.*

WOODLAND GARDEN.

LITHOSPERMUM PURPUREO-COERULEUM.

IF our only native Lithospermum having blue flowers does not rank so high as some of its better-known garden allies, it is not a plant to be despised. In the right place it can be singularly beautiful. For some time I had a difficulty in establishing my plants, but they evidently only required time, for after neglecting them for a season or two they succeeded; the long, naked stems arching and taking root at their tips.

The flowers are borne in clustered sprays at the summit of upright stems six inches long in April and May; they are considerably larger than those of L. prostratum. They show rather more of the family purple in the bud stage than do those of the latter, but expand into a deep violet-blue.

I grow this Lithospermum in a partly shaded spot in the woodland where it can ramble at will and undisturbed and break into flower among the wild Anemones, the tender, unfurling fronds of Oak Ferns, Erythroniums and other subjects of the kind. This species is apparently a lime-lover, but that element does not seem to be essential.

TRIENTALIS EUROPAEA.

This is a comely little plant for a shady woodland retreat, especially in loam rendered cool and more retentive of moisture by a free addition of leaf-mould. Trientalis europaea is a rare native of some of our northern glens. It is a frail and dainty plant of four to six inches, with a whorl of bright green, oval, pointed leaves which serve as an effective setting for the delicate white stars which rise just above them on their hair-like foot-stalks.

T. europaea is not an easy or permanent subject in all gardens, but good roots, or clumps, will not often fail in the soil recommended or in, as some advise, sandy peat. The American form, T. canadensis, is larger in all its parts than the European plant, and said to be proportionately more vigorous.

CHAMAELIRIUM LUTEUM.

Though not a particularly striking plant, this Lilaceous species, which comes from the southern States of America, is by no means ineffective for partly shaded places. From a rosette of broad, spoon-shaped, fleshy leaves, it sends up one-foot flower spikes which terminate in conical inflorescences of numerous little white flowers with a tint of yellow, the effect being much like that produced by Galax aphylla.

A cool, rather moist, vegetable soil seems to suit C. luteum (which is often named C. carolinianum in nurserymen's lists) and it associates very happily with the smaller hardy Ferns, Shortias, Tiarellas and other woodland plants of like kind. It appears to be perfectly hardy. *J.*

PUBLIC PARKS AND GARDENS.

An "Educational Garden" was opened by Dr. G. Arbour Stephens, Chairman of the Swansea Education Committee, on May 29, in Singleton Park, Swansea. Dr. Stephens, in declaring the garden open to the public, said it would be of value not only to the general public, but to the University College students and the children of the elementary schools. The garden owes its inception to Mr. D. Bliss, Superintendent of the Swansea Public Parks, who had considered the scheme before the war, but has only been able now to see its fulfilment. The garden is devoted to two classes of plants. The first consists of species indigenous to the British Isles, and includes rockery, aquatic, seashore, herbaceous and bog plants, also trees and shrubs, Ferns and Equisetums; the other section is planted with economic plants, some of which are accommodated in two glasshouses. As many as possible of the members of our native flora, as enumerated in the *London Catalogue of British Plants*, will be included in the garden, and the collection formed by Mr. Bliss already numbers 1,500. The economic plants which he has collected total some six hundred. Contributions to the garden have been made from the Botanic Gardens at Kew, Birmingham, Cambridge, Edinburgh, Glasgow and Glasnevin, and from the Chelsea Physic Garden; Dr. Hurry, Bournemouth; Mr. Hirst, Scarborough; Rev. Robert Kerr, Kirkmuirhill; Mr. Grove, Birmingham; Messrs. Sutton and Sons, Reading; and Mr. James MacDonald, Harpenden. The illustration reproduced in Fig. 213 shows a view of the portion of the garden devoted to plants of the seashore. In the borders of economic plants some attempt has been made to group the latter into classes, such as those used for producing foods, textiles, dyes, herbs, medicines, etc. A list of the economic plants has been published by the Swansea authorities, giving the botanical name, common name, the part used and for what purpose it is employed.

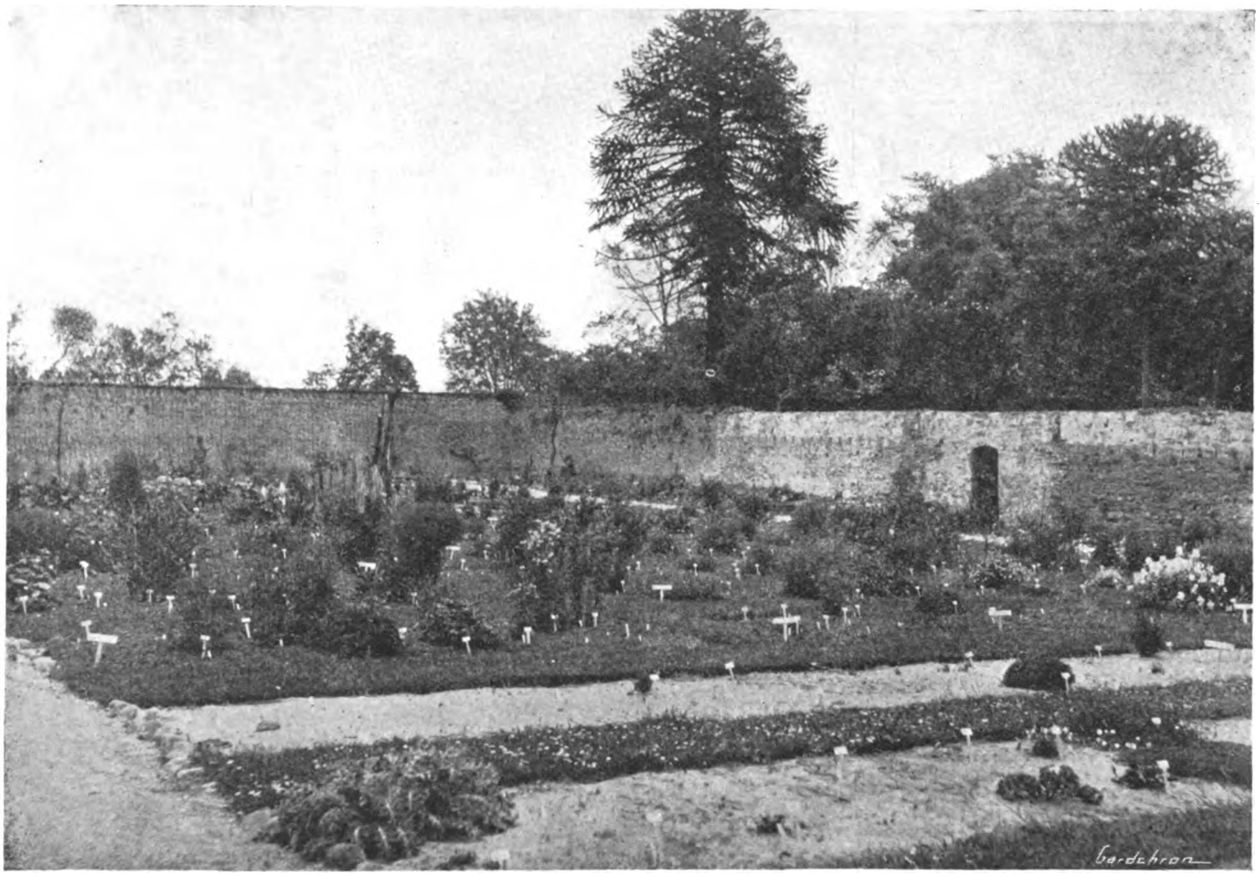

FIG. 213.—BEDS PLANTED WITH SEASHORE PLANTS IN THE NEW "EDUCATIONAL GARDEN" AT SINGLETON PARK, SWANSEA.

The second annual *Journal* of the Manchester Parks and Cemeteries Departments' Society has just been issued. It contains an excellent foreword by the president, Mr. W. W. Pettigrew, General Superintendent of the Department. Several very practical and interesting articles are contributed by various members of the staff, and by the courtesy of Mr. T. Hay, V.M.H., Superintendent of the Central Parks, London, a lecture entitled "Floral Decoration of Parks." delivered by him to the Society, is included in this number. The various activities of the Society are set forth in the syllabus published. During the summer sports meetings are held and various parks visited. The winter session comprises lectures and discussions, also weekly classes for members desiring to sit for the R.H.S. general examination.

The success of the Society is in a large measure due to the untiring efforts of the Hon. Secretary, and editor, Mr. L. E. Morgan, N.D.H.

There being a danger of Chapel Cliff, Polperro, one of the beauty spots of the Cornish coast, being sold for building purposes, a committee has been formed to raise the sum necessary to secure it for the public. The owner of the land has offered the whole stretch from the recently dismantled Admiralty mark on the east to Roozen Cove on the west, and from Kayne Bridge to sea-level, for £600. The chairman of the committee is Mr. F. Rilstone, chairman of Talland Parish Council; the treasurer is Mr. F. Campbell, M.O.H. for the Liskeard Rural District; and the hon. secretary is Mr. Frank H. Perrycoste, Higher Shute Cottage, Polperro, R.S.O., Cornwall.

ALPINE GARDEN.

MOLTKIA PETRAEA.

No dwarf flowering shrub in the rock garden attracts more admiration during early June than does Moltkia petraea (Lithospermum petraeum). It grows about a foot in height, is of shapely habit, with silvery, narrow-leaved foliage suggestive of Lavender in its winter grey. When almost every twig terminates in a flower cluster in a rich blue-violet the appearance of the plant is very striking.

M. petraea is a native of the eastern Mediterranean region, and it is a plant of easy culture and quite hardy in the right position. It grows well on a thoroughly well-drained ledge in full sun, and our oldest and best plant is thriving in the poorest and stoniest soil in the garden. Since its colour is not so clear a blue as some of the Lithospermums which bloom at the same time, it is better to give M. petraea a place apart from these Gromwells. Companions in a bright yellow, like Helianthemum lunulatum or H. Libanotis, go well with it. Propagation by cuttings is an easy matter.

ARMERIA MARITIMA VAR. VINDICTIVE.

I have had this Thrift for many years and it has never failed to attract considerable attention in the rock garden. Bright colours there may be in some of the much taller ones but Vindictive excels all others of about its own stature of six inches.

The flowers are large for the size of the plant, a vivid ruby-crimson, and the neat pads of foliage are a darker green than those of most Thrifts. This variety, which Mr. Clarence Elliott informs us he discovered in a cottage garden, is very prolific, and has an unusually long flowering season. Here, the first blooms usually open about the middle of May and a succession is maintained well into the later summer. Indeed, I have had the plant in flower until September.

This Armeria is as easy and reliable as any of its class, and in the dry, gritty soil where I have it, it does not increase nearly so fast as others of a like kind. *A. T. J., N. Wales.*

HARDY FLOWER BORDER.

A PYRETHRUM NOTE.

The new single Pyrethrum, Eileen May Robinson, with its clear coral pink flowers on beautifully straight, wiry stems, and the newer vermilion-red Harold have flowered remarkably well in my garden on plants of last season's propagation. These two varieties are so conspicuously superior in quality to others of similar colour that no lover of quality in the garden should hesitate to discard some of the older varieties, if that be necessary, to make room for these two, which are unquestionably the best in their respective colours.

Late autumn is not the best time to lift and divide Pyrethrums, because the crowns are very apt to rot during winter. Spring division is not to be recommended because, at that season the plants are prone to make flowering stems instead of stout, basal growths. The best method is to allow a plant which is to be divided to produce its flowers; cut the blooms as they develop, and so soon as bloom production wanes, say, not later than mid-July, lift the clump, shake the soil from the roots and carefully pull the crowns apart, each with its share of roots. The divisions should be planted in a partially shaded place, watered with discretion, but not to excess, and at the latter end of autumn the whole surface of the bed should be covered with burnt earth, sifted, and mixed with freshly slaked lime. Such a mulch will go far toward keeping the crowns free from slugs, and another means to the same end is to sprinkle spent calcium carbide among the plants. It is quite safe to lift these young plants carefully during favourable weather in March, taking care not to tear the young roots in raising them from the soil, and plant them in their flowering quarters with as little delay as possible.

Pyrethrums should not be allowed to produce more than three crops of bloom without being lifted and divided, and division should always mean pulling apart and separating crown from crown, not merely chopping a clump in portions with a spade. *A. J. Macself.*

FLOWER GARDEN.

SALPIGLOSSIS.

This important Chilian annual is too seldom seen in gardens in a condition that conveys an adequate idea of the distinct character and extreme effectiveness of the plant. The Salpiglossis being of free growth when it is given the right conditions, it is sometimes considered that the most rough and ready method of culture will suffice, and the least troublesome course is taken in raising stocks. This is a grave mistake, however, for few annuals grown for the embellishment of the flower garden require more skilful management, to have them in perfection, than the Salpiglossis. Although the seeds may be sown in the open border, this is not the best way of culture, for these annuals do not, under the most favourable conditions, flower until comparatively late in the summer, and when the seeds are sown in the open border the plants do not, as a rule, come into flower sufficiently early to contribute their share of the attractions of the beds or borders in which they have a place. Further, it is an all too frequent occurrence that annuals sown where they are to flower become much overcrowded, and this is a fatal handicap to perfection in the cultivation of the Salpiglossis, for unless each plant has ample space for its full development the flowers are few in number and insignificant in appearance.

To ensure the plants flowering satisfactorily a long season of growth is a prime necessity, and those who would have these flowers in their true character and in full flower for so long a period as possible must assist the plants by raising them under glass and planting them out at this season.

When well-grown, they are beyond all doubt strikingly effective and decidedly beautiful, much of their distinctive beauty appearing in strange shades of purple, brown, olive, orange and red, the veins and splashes adding much to their attractiveness. Nothing could be more distinctive in flowers, and they are wondrously pencilled and shaded as if nature had reserved for them all the odd notions of colour that had come into her mind while painting the rest of the vegetable kingdom. These annuals are not very exacting as to soil and position, although they do better on soils that are comparatively light and warm, and they should not be planted where they will be overshadowed by trees or large shrubs, as a very moderate amount of shade will suffice to draw them from their true character. They may be planted with good effect in both beds and borders, but their comparatively late period of flowering makes them less suitable for massing in association with other plants; the fact that they do not flower during the early summer months is of less consequence.

As a pot plant for the decoration of the conservatory in summer, the Salpiglossis is not without attractions, as the magnificent plants in Messrs. Sutton and Sons' group at the recent Chelsea show testified. *A. P. C.*

AQUILEGIAS.

The Columbine has for long held the affection of all garden lovers; in the flower border, the various forms are exceedingly graceful and beautiful, and for the decoration of the house, few flowers are so pretty. As plant are difficult to increase by division of the roots, seeds afford a ready means of propagation, at any rate, for the hybrid, long-spurred forms; spring sowings may be made in warmth, and autumn sowings in the open, success being practically assured by either method.

Some very fine hybrid strains are offered by certain firms with variously and richly-coloured flowers, the plants of good habit and the coveted elongated spur much in evidence; they may be utilised in the hardy flower border, grouping them *en masse* in nursery beds for cutting, or in the woodland, where they are particularly effective. The flowers last well when cut, and are extremely pretty as a table decoration.

When in possession of a good strain, it is an excellent plan to save seeds from the best flowers, for the resultant seedlings will be full of interest, and the value of an already fine race of flowers will be enhanced.

There are several species of Aquilegia worthy of extended cultivation, some of them being of outstanding beauty and eminently suitable for the rock garden or the herbaceous border.

A. coerulea was introduced from the Rocky Mountains in 1864; the flowers, several on a stem, are blue and white, occasionally tinted lilac, or very rarely they are pure white. The spur, slender and straight, is tipped with green, and about two inches in length. This is a very pretty plant, growing from twelve to fifteen inches in height.

A. chrysantha has yellow-tinted flowers, several on a stem, the spurs being straight and very slender, and about two inches long. The plant grows three to four feet in height, and is one of the very finest species for the border. It was introduced from California in 1873.

A. formosa is a very beautiful species, with bright red and yellow flowers; the spurs are hardly one inch in length, slender and distinctly knobbed at the tips. It is a native of North America, and flowers from May to September. A. formosa is very beautiful when colonised in the rock garden.

A. glandulosa, with blue and white flowers, was conspicuous in exhibits at the Chelsea Show. The large, bright blue and white flowers, with short spurs, are exquisitely coloured. This species, which grows from eight inches to a foot in height, was introduced from Siberia in 1822, and revels in half-shade and moisture.

A. viridiflora is, perhaps, more quaint than pretty, and is at least very interesting. It grows from one foot to one-and-a-half foot in height. The small, greenish flowers are pleasing and fragrant. It is a Siberian plant, introduced so long ago as 1780.

A. canadensis, with bright red and yellow flowers, is a very pretty plant for either border or rockery; flowering from April to June, and growing from one foot to two feet in height. It was introduced from North America in 1640.

A. vulgaris, the common Columbine, is too well-known to need description; it is a very fine old garden plant, and most effective when colonised in woodland or in the wild garden. The species is generally distributed over England; The numerous forms are varied and pretty.

Aquilegia alpina is a true alpine, and was introduced from Switzerland in 1731; it grows one foot in height. The stems are two or three-flowered, the flowers being blue or blue and white, with straight spurs. Flowering in May, this plant requires shade and moisture, and is most pretty and interesting in the alpine or rock garden.

Amongst other interesting forms may be mentioned A. fragrans, flowering from May to July: it was introduced from the Himalayas in 1839; and A. glauca also a Himalayan plant. These two species require warm and dry positions being somewhat tender. A. pyrenaica was sent home from the Pyrenees in 1818; it is a small plant with bluish flowers, and is very suitable for rock garden planting. A. siberica is another small species for the rockery, with bright lilac flowers; it was introduced in 1806. A. olympica, blue and white, from Mount Olympus, is an attractive and somewhat scarce plant. A. flabellata, an ivory-white Japanese species, is very pretty in the rock garden in May and June.

There is something particularly refreshing and very English about the Columbine, and its various forms are among the more precious of our garden treasures. *Ralph E. Arnold.*

INDOOR PLANTS.

SCHIZANTHUS.

I HAVE been greatly attached to this flower for many years, because I consider it one of the most decorative greenhouse subjects in cultivation. The range of colour is extensive, the flowering of the plants profuse, and the enduring qualities of the blossoms most pronounced.

Of the many forms of Schizanthus, none give greater satisfaction than a good strain of hybrids, such as the one which Messrs. Dobbie and Co. have exhibited at meetings of the Royal Horticultural Society in recent years (see Fig. 214).

Cool treatment and free ventilation are essential at all stages of the plants' growth. The temperature should range between 60° and 65°. Good light is a necessary factor also at all times, save when the plants are in flower.

In order to attain the best results, I find it necessary to pot the plants three times, firstly into three-inch pots, secondly into five-inch pots, and lastly into seven-inch pots. On the first two occasions the following compost is used: two parts of good fibrous loam, one part of leaf-mould, half-a-part of partially decomposed farmyard manure, and one part of sand, the whole materials passed through a half-inch riddle. For the final potting more manure may be used, and the whole passed through a three-quarter-inch riddle. I advise moderately firm potting and staking the plants before the growths fall over. The question of stopping can only be determined by reference to the individual plant. If a natural break has not developed when the specimen is six inches tall, the growing point should be removed to induce one to form. Judicious feeding is a contributory factor to success; it should be commenced when the plants first display signs of running to flower, and may be continued until flowering is over. For this purpose there is nothing better than applications of dilute liquid manure twice a week. *Geo. H. Copley.*

CALADIUMS.

WITH the revival of interest in indoor gardening these handsome foliaged plants will doubtless regain some of their former popularity.

In March, after the tubers have been rested during the winter in a minimum temperature of 60°, the stock should be overhauled, shaking out and repotting the tubers. The small-leaved C. argyrites and C. minus erubescens may be potted into the receptacles in which they will remain for the season, placing several tubers in a four-inch pot. The large foliaged varieties are best started singly in small pots, potting them on so soon as growth is well advanced. By this method specimens of any size may be formed by selecting plants at the same stage of development and placing the required number in a receptacle of the desired size. They thrive in a compost of fibrous loam, with a little peat, leaf-mould, sand and fine bones added.

After potting the plants, stand them over a little bottom heat, and water the roots sparingly until growth commences. In a high temperature and a humid atmosphere, growth is very rapid. When the pots are filled with roots feeding should be commenced; the roots may be watered with weak liquid manure at frequent intervals to encourage growth and retain colour in the foliage.

As growth develops the plants may be hardened gradually, placing them in a position free from draughts. The thorough ripening of the tubers in autumn previous to storing is essential. After the foliage dies down the pots may be laid on their sides in a position free from drip, and examined at intervals.

There are over one hundred named varieties, of which the dark crimson Baron A. de Rothschild, the narrow-leaved green and carmine Barillet, the dwarf, bronzy-gold Baroness Schröder, the white-leaved Duchess of Fife, the transparent rose and green La Perle du Bresil, the rosy carmine Ibis Rose, the pale yellow Golden Queen, the large-foliaged white and red Leonard Bause, and several others included with the best to-day were in cultivation thirty years ago. *Fred W. Jeffery.*

ORCHID NOTES AND GLEANINGS.

LYCASTE AROMATICA MAJUS.

THIS is one of the most fascinating cool-house Orchids in flower at the present time. The species was formerly popular with Orchid growers, but the larger-flowered variety has never been so freely grown as its merits deserve. It is very free-blooming and, in common with others of the genus, may safely be used for drawing room decoration without any fear of injury, and the flowers remain fresh and attractive for a long time.

Fragrance is always a debatable quality, but I am rather of the opinion that the variety majus is even more fragrant than the species and the richer orange colour certainly renders it more attractive.

Lycaste Deppei is another old species which is worthy of extended cultivation. There seems to be two forms in cultivation and the more desirable has somewhat rounded, slightly hooded flowers, which are more freely marked with chocolate-purple spots on the sepals. The less desirable type has larger, pointed sepals and, in comparison, the flowers are paler and uninteresting. *B. K.*

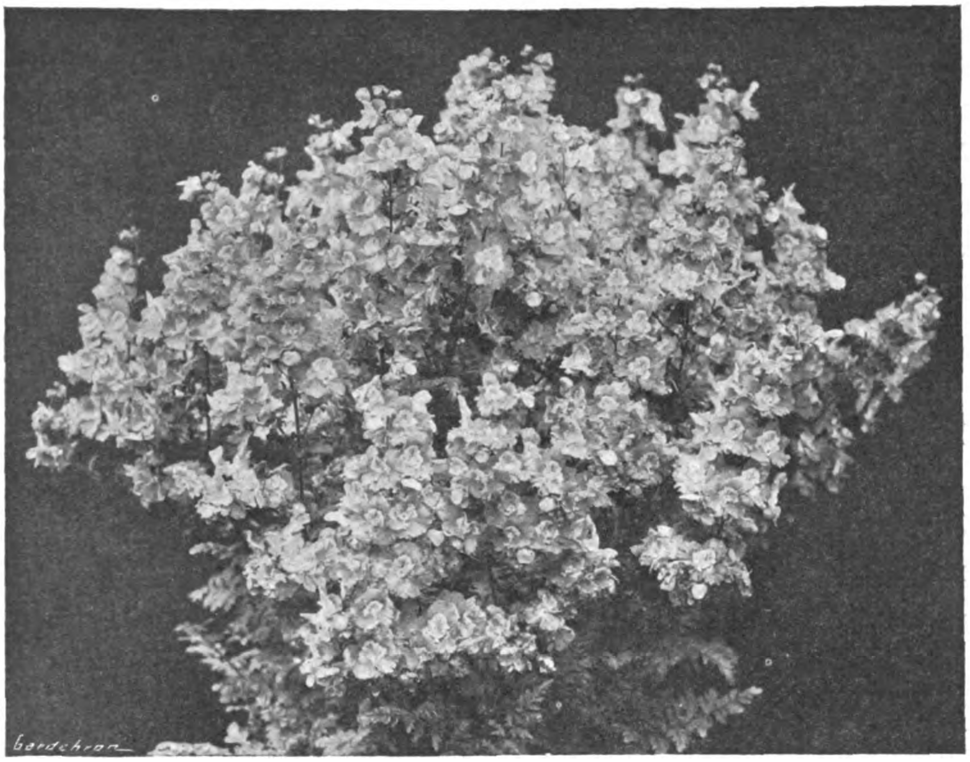

FIG. 214.—PLANT OF SCHIZANTHUS OF MESSRS. DOBBIE AND CO.'S FINE STRAIN.

A HYBRID ORCHIS.

IN the rock garden at Kew there is a splendid clump of the hybrid between Orchis foliosa and O. maculata now in flower.

In general habit the plant resembles the Madeiran species, throwing up stout stems, eighteen inches or more in height, well-furnished with leaves and crowned with large spikes of flowers. The leaves are as large as those of O. foliosa and have derived attractive chocolate markings from the British parent. But, attractive as are the leaf-markings, the greatest improvement on O. foliosa lies in the inflorescence. The spike, while being quite large for the genus, is much more graceful, and the flowers are freely marked with bright rosy purple.

This hybrid is growing splendidly in fairly moist soil on the ground level, while the Madeiran Orchis foliosa has been found at Kew to thrive best on higher ground. Quite close to the hybrid there are several spikes of Orchis nunbyana bearing spikes, about a foot high, of clear rosy purple flowers. *B. K.*

NEW HYBRID ORCHIDS.

(*Continued from May* 8, *p.* 338).

Name.	Parentage.	Exhibitor.
Brasso-Cattleya Priscilla	C. Percivaliana × B.-C. Digbyano-Mendelii	C. J. Lucas, Esq.
Cymbidium Gladys	Coningsbyanum × eburneum	Edinburgh Botanic Garden.
Cymbidium Inverleith	Lowianum × Coningsbyanum	Edinburgh Botanic Garden.
Dendrobium Bembo	Euryabus × melanodiscus	Capt. W. Horridge.
Dendrobium Chiron	nobile Cooksonii × Victoria Reginae	Capt. W. Horridge.
Dendrobium Honeydew	Snowball × Butterfly	Capt. W .Horridge
Dendrobium Leander	Thwaitesiae × Austiniae	Capt. W. Horridge.
Dendrobium Merlin	nobile × Queen of Gatton	Capt. W. Horridge.
Dendrobium Nemensis	melanodiscus × Victoria Reginae	Capt. W. Horridge.
Dendrobium Pandora	nobile × Snowball	Capt. W. Horridge.
Dendrobium Phyllida	Ainsworthii × Snowball	Capt. W. Horridge.
Odontioda Purpura	Odm. Thompsonianum × Oda. Vuylstekeae	G. W. Bird, Esq.
Odontioda Griseli Lady Polwarth	Henryi × Brewii	Sutton Bros.
Odontoglossum Flo	Gatton Princess × Lord Pirrie	Sir J. Colman, Bart.
Odontoglossum Varitannia	Vardar × Britannia	R. Paterson, Esq.

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Letters for Publication *as well as specimens of plants for naming, should be addressed to the* **EDITORS, 5, Tavistock Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Illustrations.—*The Editors will be glad to receive and to select photographs or drawings suitable for reproduction, of gardens, or of remarkable flowers, trees, etc., but they cannot be responsible for loss or injury.*

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Editors and Publisher.—*Our correspondents would obviate delay in obtaining answers to their communications, and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all letters relating to financial matters and to advertisements should be addressed to the* PUBLISHER; *and that all communications intended for publication or referring to the literary department, and all plants to be named should be directed to the* EDITORS. *The two departments, Publishing and Editorial, are distinct, and much unnecessary delay and confusion arise when letters are misdirected.*

Newspapers.—*Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editors to see.*

CLASSICAL AND LEGENDARY GARDENS.

VII.—THE GARDEN OF LUMBINÎ.

As we have seen in the references to Sukhâvatî, it is to Japan that we owe much of our knowledge of the garden-lore relating to Buddha and Buddhism. In the year 1133 was born in the province of Mimasaka a child who was to do much for Japanese Buddhism. He devoted himself to the study of that system, and finally developed a special doctrine of salvation, or the road to the Pure Land. A new sect arose, which was named Jodo, a word which has in Japanese the same meaning as Sukhâvatî, namely, the Happy Land, the Land of Bliss or of Purity, the Heaven of Amida. Another name for this Paradise is Tosotsu. According to the Japanese, Jodo or Kubon Jodo is divided into nine regions, in which dwell the saints or the enlightened, according to their several degrees of merit, reminding us of the Paradise of Dante. The question naturally arises—From what source did these Eastern races draw their conceptions of the Garden of Delights? Were they purely imaginative, or had they a more substantial basis? I think the most satisfactory answer is that Sukhâvatî, or the western Paradise of the Buddhists, is a compound of the two. It was "founded on fact," but elaborated by fancy. Let us try and ascertain what is the justification for this view.

Rightly to understand the views of the later Buddhists, which varied very widely in many respects from those of their founder, it is necessary to study the life of Buddha himself. If we admit that he was not a mere myth, but a being of flesh and blood, we cannot get away from the tradition that he was also of royal blood—a prince by birth. That being granted, we shall expect to find his youth associated with such pleasures as the children of kings are familiar with from birth. He will live in a palace, be attended by a number of servants, take exercise in parks and pleasure grounds, find delight in the perfumes of the garden, and be acquainted with all those luxuries for which the Oriental has always been famous in literature and legend. And we are consequently not surprised to learn that literally Buddha was born in a garden. To Sanskrit scholars and Chinese pilgrims, to soldiers and surgeons, to civil servants and missionaries we owe the means of recovering the story of the Garden of Lumbinî.

Ancient tradition uniformly maintained that the birthplace of Buddha was the old-time city of Kapilavâstu, said to be a few days' journey north of Benares. In the sixth century B.C., the Sakya princes had their residence here, or in other words, it was the capital of the Sakya kings. They were what would now be known as Indian Rajahs, and at this time the father of Buddha as the head of the tribe was the ruler of the principality. Belonging to the city and the prince was a park or pleasure ground which was well-known for ages to all students of Buddhism, but of which the site was lost, together with that of the city itself. So complete was the ignorance which prevailed till the most recent times, that a high authority on Indian archaeology, Sir Alex. Cunningham, placed it near the village of Bhuila in the Basti district of the North-western Provinces, though the identification was wrong, and was admitted to be such by all competent authorities. In his *Mémoire Analytique*, appended to the translation of the *Travels of Hiouen Tsang* by Stanilas Julien, Vivien de St. Martin rightly placed it between Gorakhpur and the mountains of Nepal. This was in 1858, since which time, thanks to the descriptions given by the ancient Chinese travellers and the indefatigable researches of modern scholars, the fullest confirmation of St. Martin has been obtained.

The interest for us to-day lies in the fact that we are now able to identify the well-known pleasure grounds, famous in the Buddhist tradition under the name of Lumbinî, as the garden to which, when about to give birth to her first son, the future founder of one of the world's great religions, Queen Mâyâ retired. Let Sir Edwin Arnold tell the story.

> Queen Mâyâ stood at noon, her days fulfilled,
> Under a Palsa in the palace-grounds,—
> A stately trunk, straight as a temple-shaft,
> With crown of glossy leaves and fragrant blooms;
> And knowing the time come—for all things knew,
> The conscious tree bent down its boughs to make
> A bower about Queen Mâyâ's majesty,
> And earth put forth a thousand sudden flowers,
> To spread a couch, while ready for the bath,
> The rock hard by gave out a limpid stream
> Of crystal flow. So brought she forth her child.

It was in this famous garden of Lumbinî that the young prince found delight; it was this delightful pleasure ground, with all its youthful associations, that he gave up to go out into the world in search of a means for redeeming man.

It is not a little curious that we owe the identification of the site in great measure to certain allusions found in the writings of pilgrims from China, who in the fifth and seventh centuries of our era visited India as devout Buddhists, and left to posterity interesting details of their travels. Their chief goal was Kapilavástu itself. In the third century B.C., the famous Buddhist king Asoka visited the sacred places through which Buddha in his journeyings had passed, and caused them to be commemorated by pillars, monasteries and monuments of various kinds. These, in time, fell into decay, but some of them bore inscriptions in the alphabet and language of the age, and these were of great value to linguists and antiquaries in their endeavours to fix the various sites. One of these pillars was described by Hiouen Tsang, who mentioned that, in his day, it had already been broken in two. This pillar has recently been discovered, and Dr. Führer informs us that the top seems to have been shattered by lightning, thus confirming the statement of the seventh-century pilgrim. Though the latter makes no reference to an inscription, one has now been found. It was long ago covered up by the accumulation of débris, but we may still read on it that King Piyadasi or Asoka, twenty years after his anointing, came hither and worshipped. "Here," he said, "was born Buddha Sâkyamuni," and he caused a stone pillar to be erected which stated that "Here the Venerable was born." What is for us of peculiar interest is the fact that the garden is named on the inscription, Lumbinî or Luminî, so that we are at least assured that, if this was not the very birthplace of Buddha, it was the place to which King Asoka was led in the third century B.C., or within two or three hundred years of the birth. The guide who showed Asoka the sacred places informs us that it was then named Upagupta, and this was the starting-point for their pilgrimage. "Here," he began, as he extended his right hand, and pointed to the Garden of Lumbinî, "Here, O great King, was the Baghavat born and here should be the first monument in honour of the Buddha." And there Asoka caused the pillar to be erected.

To trace the history of the recovery of this interesting monument is now unnecessary, since others have performed the task already. We may however, linger a moment on this sacred spot, to see if we can learn anything as to its character, and the plants which grew there. We are told that here Mâyâ, the mother of Buddha, took hold of the branch of a lofty Asvattha tree, and gave birth to a son. Sir Edwin Arnold calls it a Palsa tree. What tree is intended? To take the last first: Sir Edwin doubtless intends by Palsa the well-known Palasa (Butea frondosa), whose blossoms might be described in the language of Wordsworth as

> Flowers that with a scarlet gleam
> Cover a hundred leagues, and seem
> To set the hills on fire.

They appear, like those of the Daphne, Forsythia, Almond, Enkianthus and many other shrubs and trees, before the leaves, thus producing a most brilliant effect, and giving the whole landscape a characteristic appearance during the cold season. The name varies a good deal in different parts of India and may be found in botanical and travel books as Pulas, Palas, Pallas, **Plass**, Palsa or Palasa. Hooker found it, as many other travellers before and since, in the jungle, the twigs being often covered "with livid tears of Lac. As it occurs on the plants and is collected by the natives it is called Stick-lac, but after preparation, Shell-lac." The Palasa is a member of the Order Leguminosae, and the flowers, which are some two inches in length, are a bright orange-red. There is a pale yellow variety, and an allied species (B. superba) which has even larger blossoms of a gorgeous orange colour.*

The Palasa, both on account of its beauty and because its wood is applied to sacred uses, formerly had a special cult in India. Legend informs us that when the Buddha approached his end the flowers turned to blood. This is a very popular tradition, and we have it in this country and elsewhere attached to quite a number of plants. The tree under which the birth took place, however, was more probably the Asvattha or Ashwat, usually known as the Peepul or Pipal (Ficus religiosa), which, though wild in many places, is largely cultivated, and finds a place in every park and pleasure ground. Volumes have been written on the Sacred Bo-tree, and it is therefore needless to enter into detail respecting its characters. It enters more largely than any other tree, perhaps, into Buddhist folk-lore. According to one tradition it was under the shade of the Bo-tree or Pipal that Buddha received his divine nature. Against it he leaned when he was weary. Hence, perhaps, the perpetual motion of the leaves, and the pleasing sound which results, reminding us of the Aspen and Poplar of high renown among our own poets and folklorists. By the fretting of the Pipal with the Acacia fire was engendered—hence, in part, its sacred character. From the days of the Vedas, the early Chinese pilgrims, and the travellers of the Middle Ages, down to our own times, this tree has always found a place in literature, and we may therefore safely imagine it as having a prominent place in the Garden of Lumbinî.

What other plants grew there, and how the grounds were laid out may best be read in the works relating to the birth and youth of Buddha. But for all time this newly-discovered paradise will take its place among the most interesting of classical and legendary gardens. *Hilderic Friend.*

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* For Dr. Roxburgh's original description of Butea frondosa and B. superba, see *Asiatic Res.* iii., 469 *et. seq.*

JUDGING ROCK GARDENS.

Criticism of judges' decisions is proverbial and perennial. The hanging committee of the Royal Academy, and the judges who adjudicate on questions of hanging in Courts of Law never have given, and probably never will give entire satisfaction to all parties concerned. And even at important functions, such as cat shows, agricultural shows, and flower shows, it is just the same.

At Chelsea Flower Show criticism of the judging was, this year, more than usually lively. I met it everywhere, and I joined in myself with not a little enthusiasm; and now that I have had time to reflect, I should like, with perfect good humour and such humility as I can command, to say a few things about judging in general and judging rock gardens in particular. I have stated before in *The Gardeners' Chronicle*, and I repeat it now, that in my opinion, it is a mistake to introduce competition and to offer a first prize for the best rock garden, and lesser, graduated prizes for the second, third and fourth-best rock gardens, and so forth.

Rock gardens are, or should be, so largely a matter of artistic effort that to award them graduated prizes is as futile as to give prizes to the pictures at the Royal Academy. You can set up a perfectly satisfactory artificial standard by which to judge and award graduated prizes to such things as pedigree bulls, Pekinese puppies, or in horticulture to such things as collections of vegetables or fruits, or groups of plants in which cultivation and finished staging are the predominant factors, but in which the aesthetic side is practically non-existant. Rock gardens are like pictures, and in judging them ninety per cent. at least of consideration must go to their aesthetic side, and like pictures, therefore, they should not be judged for prizes.

I do not pretend to be perfectly consistent when I say this. I exhibited a rock garden at Chelsea this year, in what is usually considered the exhibition manner, and for the last two years I have, in collaboration with Mr. John Wood, judged the rock gardens at the great Southport Flower Show. On principle, I suppose I ought to have refused, but the prizes were there, some one had to judge, we were both asked, and really I could think of no better judges than our two selves! But having judged, and been judged, I am perhaps the better able to judge judging. If judging rock gardens is to be continued at Chelsea—which I hope it will not—there are one or two suggestions and observations I would like to offer for consideration.

If the rock gardens are for competition, surely they should all be on an equal footing in the matter of shape and size. The large rock gardens this year must have covered four or five times the area of some of the smaller ones.

I had a middle-sized piece of ground allotted to me—which was all I wanted. It may be argued that one can make just as beautiful a garden on a small as on a large scale. But when judging is done by "pointing" large as against small rock gardens it must of necessity confuse the issue. Then as to judging by points. It would be an immense help to exhibitors if they knew how the points are allocated.

I have never seen the R.H.S. scale of pointing for rock gardens; it has never been brought to my notice, nor to the notice of the other exhibitors, so far as I know. Further it would be helpful and instructive to the exhibitors if the points scored by their exhibits were made known to them—so many marks for construction, so many for suitability of plants used, so many for finish, and so forth.

At the Southport exhibition a very full and precise schedule of judging points is published to the exhibitors and used by the judges. When judging is over the points awarded are posted, and last year at the request of some of the exhibitors I went to every rock garden and discussed and explained to the exhibitors in detail where and why we had pointed high, and where and why we had pointed low. Too many variegated Conifers or bedding Violas in one garden. Water-Lilies introduced into a mountain stream in another; or shade-loving alpines planted side by side in the same aspect with sun-lovers on a third. I am sure it is helpful and satisfactory to exhibitors to learn the point of view of the judges, and at Southport, what might have been expected to be an ordeal—going round and facing all the exhibitors and telling them why—was, in fact, a great pleasure.

At Chelsea we were quite in the dark as to how the pointing was allotted and what were the ideals of the judges. Did they prefer planting spaces crammed with colour, any sort of colour, double-flowered herbaceous plants included? Did salmon-pink and mustard yellow in juxtaposition give them pain, or pleasure? Did they prefer rocks placed right side up, or did they like them up-side down? Did they like stratification as found in nature, or as found in the steps of the Albert Memorial? But what does it really matter? Some judges like one thing, some another. You may give the cup to the rock garden which the judges like best, but you cannot give it to the best rockery, because there is no such thing as the best rock garden. *Clarence Elliott, Stevenage, May* 30.

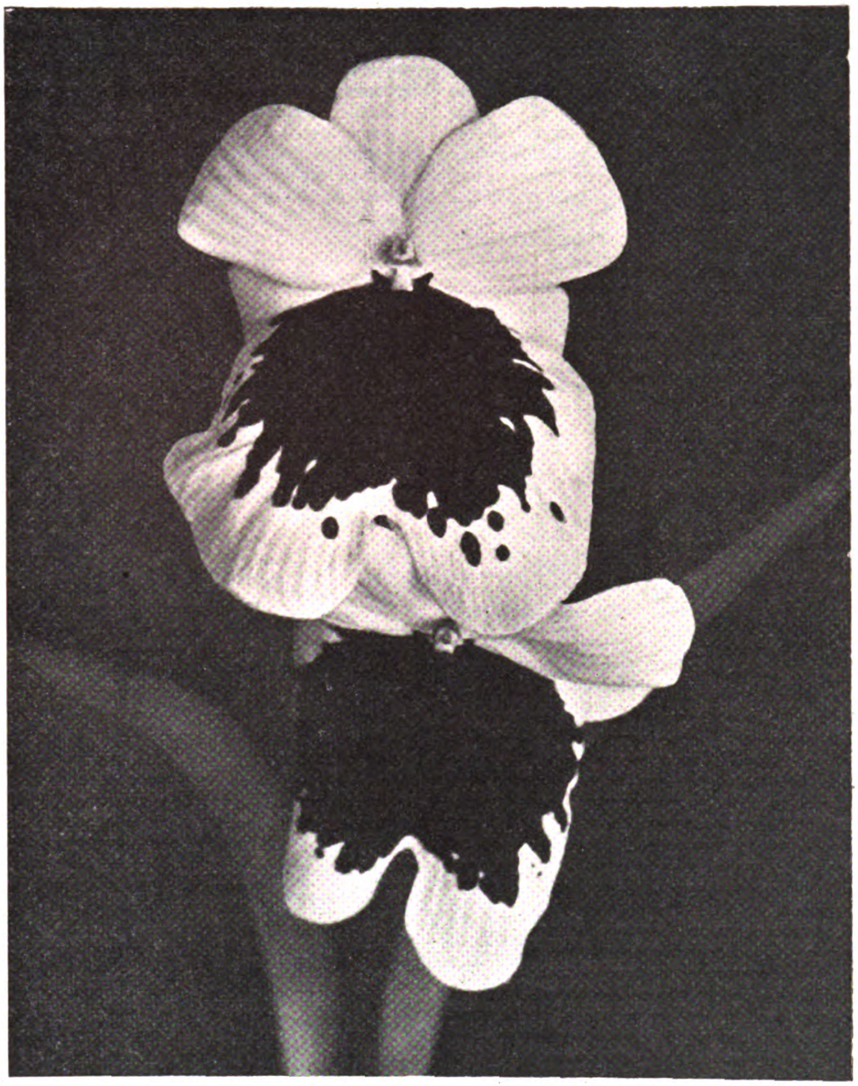

FIG. 215—MILTONIA PRINCESS ELIZABETH VAR. SUPERBA.

R.H.S. Award of Merit, May 25. Sepals and petals pale blush, lip heavily blotched with chocolate-red. Shown by Messrs. Black and Flory.

(see p. 385).

RIGHTS OF WAY.

To have a right of way over property is often a very great inconvenience to the owner, and certainly, tends to lessen the value of the premises, for besides having people walking over the property, the owner may also find himself in serious trouble if he interfers in some way or other with their right of passage, hence it is useful to know something about these important rights.

In the first place, a right of way can be acquired either by express agreement, or by contract, or by what is known as "prescription," which amounts to using the ground as a right of way for a certain length of time—usually twenty years.

Secondly, the right must be acquired by one man over another man's land, for even though I walk over my own field to get to my house for a hundred years, I shall never acquire a right of way over the field. And if I were to sell the field to another man he could stop me from walking over it, unless I specially provided that I should have a right of way there.

Then there is also the subject of the liability of a man over whose property someone has a right of way, to keep this way in good order.

The general rule in law is that the owner of the land is under no such liability, but he may make himself liable either by an express contract to keep it in repair, or by prescription—where he has done so without complaint for many years.

From this it follows that the person who has a right of way over another man's land, has no general right to trespass on the adjoining soil, but he must keep to the prescribed path, even though the path is out of repair. But if the owner of the land deliberately obstructs or destroys the path, then the person who has the right of way over it will be justified in trespassing on to the adjoining land; the fault is in the owner of the land, and he must put up with the consequences.

Closely connected with the subject of keeping a right of way is the liability of a landowner or occupier to look after stiles on his premises. And here again the mere fact that a public footpath crosses a fence by means of a stile does not impose upon the owner of the fence any liability to repair the stile. And the repair of it for his own benefit, however often done, would not impose a liability to repair it for the benefit of the public.

I have already referred to "prescription" as a means of acquiring a right of way. This method in general amounts to the uninterrupted use of the way for a period of twenty years or more. But this right is capable of being defeated in certain cases where the person against whom it is acquired is under a "disability," for example, is a lunatic; uninterrupted use for forty years will give an absolute right to the "easement," as it is called. *H. S.*

SOME RECENT AND REMARKABLE DEVELOPMENTS IN PLANT FAMILIES.

What, among the many tribes, strains and varieties of cultivated plants, deserves credit for being the greatest development and improvement of recent years? This question is prompted by the interesting information that Messrs. Abol, Ltd., are providing a trophy, value £50, to be awarded to the exhibit, at the show of the Staffordshire and Midland Counties' Floral Fête, which demonstrates the greatest development and improvement of recent years in any one family, strain or variety of plant, ornamental or utilitarian.

The idea appeals strongly to any one interested in the progress and advancement of horticulture as a whole, for it will focus attention upon the work and success of many plant-breeders, and whatever may be fortunate enough to secure the award will share with all else that competes a keener concentration of interest from horticulturists of all classes, and there is much to be said for this broad-minded comparison of relative values and merits of widely differing plants.

A specialist is usually so keenly interested in his own pet fancy that he is apt to nurse the idea that nothing can eclipse his particular favourite, but the world at large may have eyes and appreciation for quite other things. It may be of some practical value to pass in review a few subjects which have undoubtedly made very remarkable strides within recent years, confining attention, for the moment, to such as are in season in August, which is the month of the Staffordshire show.

The modern Lupins immediately occur to mind, for without doubt progress has been both remarkable and rapid in this family. There are several distinct strains, each possessing pronounced, distinctive features, and to say the least of it, hardy plantsmen have endowed our gardens with a wealth of beauty we little dreamt of in the earlier years of this century.

The primulinus class of Gladioli is entirely the product of the twentieth century, and right royally do they uphold the prestige of our craft of these latter days.

Scabiosa caucasica has been carried to a stage of wonderful excellence, and that it is an extremely popular flower is amply demonstrated by the delighted exclamation of admiration the exhibits at our leading shows invariably bring forth.

Seldom, indeed, does one hear anything but admiring praise of this delightful and most serviceable flower, but sometimes, rather frequently, in fact, some supplementary comment is made which indicates the existence of a fixed idea that it is a difficult plant to grow, and it is fairly obvious that failures with it are frequent, for otherwise the majority of gardens would long since have become well-stocked with it.

One essential to success is a liberal amount of lime or chalk in the soil, and any deficiency may quite easily be remedied by frequent, light surface dressings which will confer the additional benefit of helping to some extent to keep slugs, the arch enemy of Scabious, in check.

Antirrhinums have made for themselves a place high up in the esteem of the great mass of garden lovers, and it would be difficult to form an estimate of the numbers of plants distributed among gardens of all sizes throughout the land.

Perpetual border Carnations and Pinks are modern creations which should have a brilliant future; it would be interesting to see these exhibited in the form of growing plants in beds. The Mignon Dahlias have staked their claim in the vanguard of bedding subjects. The class is of outstanding importance to the cult of the Dahlia, and Coltness Gem has been credited with capability of wresting the well-worn laurels from Paul Crampel, the monarch of bedding Zonal Pelargoniums. The newest colours in Hydrangeas undoubtedly demonstrate progress of more than ordinary importance, and doubtless a group can be timed to display the fulness of their beauty and the newness of colour shades at this August show.

We have, of course, a host of glorious flowers in August, but the point at issue is not simply what is finest, best, most beautiful or most popular, but what has made the greatest strides of progress in recent years. The tuberous Begonias are full of wondrous quality, but their reign commenced back beyond what may reasonably be termed recent years, whereas there are plants which, we may say just before the war, were of small account, but which have marched forth from obscurity to positions of prominence among popular subjects, and some of these have made infinitely greater strides of progress within the last six, eight or ten years than such deservedly popular flowers as Sweet Peas, Roses or perpetual Carnations, and it is an intensely interesting problem to study, which of the many has shown the greatest results for the few years of effort.

Unfortunately, an August show cannot give equal opportunity to all garden subjects. The Rhododendrons, many kinds of spring-flowering alpines and shrubs, the Irises, and also the Michaelmas Daisies are barred from the arena, on this particular occasion and it is not the ideal season for new Apples or vegetables. Nevertheless, August is a great month for Flora's pageant, and if all that is worthy is brought into close comparison, there should be a wonderful display and an opportunity for expression of widely diverse opinions, and all this, surely, is to the great benefit of horticulture, and engrossingly interesting to all who garden. *A. J. Macself.*

IMPRESSIONS OF CHELSEA SHOW.

Analysing his impressions of the Chelsea Show, the veteran showgoer returns again and again to the dominant feeling of amazement, not so much, perhaps, at the extent of the crowd which found its way there in record thousands, as at the composition of it, and the change in the social order which has made such astonishing attendance possible. It is often said that a new race of gardening people has sprung up since the war, and no one who went to the recent Chelsea Show with his eyes and ears open could doubt it.

Such broadening of interest—obviously keen and genuine—in a pursuit which up to a few years ago was more generally associated with the leisured classes, is all for the best, for no one can have to do with flowers and plants without being the better for it. It has its material side, too, as is clear from the swelling Fellowship roll of the R.H.S., and the order books of nurserymen.

But if the visitors were largely recruited from a class which till recently had neither the time nor the means for serious gardening, the exhibits themselves bore witness to the truth of the trite saying that one Chelsea show is much like another. It would not be true to say that one exhibit was much like another, but among flowering shrubs and herbaceous plants especially the repetition of specimens at Chelsea is annually as astonishing to the experienced gardener as it is tedious. Doubtless the ideal show would be one in which duplicates were barred, and all specimens well-grown and well-staged; but that is obviously impossible, and the existing order of things has its merits, since it enables everyone to see how much better plants can be grown by one hand than another, and how much more effectively staged. Unfortunately, cultivation and show staging are seldom sister-arts, or we should see more exhibits of such high order as that of bearded Irises by Messrs. G. Bunyard and Co., and of lesser Chinese plants by Lady Aberconway and her son.

Fortunately, we have not reached the point when visitors cluster round the "rock garden of the year" to the practical exclusion of the rest, as is the case of the Royal Academy pictures, and though the judges made their choice—in this instance an unusually difficult one—each exhibit received a fair measure of attention from visitors; the design and construction of each also came in for intelligent criticism, constructive and destructive. Though for the moment the professional makers of rock gardens seem to be working in a groove of weathered limestone, which, in the necessarily confined space available at Chelsea rather tends in the direction of monotony, the general lay-out is of such high order that it should not be impossible to go a little further and ensure that the disposition of the plants used shall bear some relation to their known requirements.

With sundry honourable exceptions always a weakness of show rock gardens, this point was less evident at Chelsea this year than in the past, but to experts there was still obvious misuse of plants. This may be due to the fact that skill and taste in the designing of rock gardens do not always go hand in hand with a knowledge of the ways of plants; but whatever the cause, if the R.H.S. Council and the judges were adamant on this point, we should not see calcifugal plants placed on limestone, nor Primula helodoxa planted high and dry, while P. Forrestii is only a few inches above the edge of a pool. These are only examples, but the needs of these two species should now be so well known to render such mis-placing impossible. From the pictorial point of view, again, the placing of a clump of Lilium rubellum close to the edge of a stream, so that the blooms were actually reflected in the water, was a *tour de force*. It was doubtless done to produce a certain effect, but experts know that the particular Lily would soon give up the ghost in such surroundings, and visitors undoubtedly come to Chelsea to see and learn quite as much as to have their senses tickled. The general impression left on the mind was that the standard of the rock gardens was higher than before, but that too much reliance was placed by designers on planting in turf as distinct from rock planting, and on a stream of water, which, though easy enough to contrive at Chelsea, is so seldom possible in practice. Happily, some absurdities of the past, such as goats and gold fish, have gone the way of such things, and artificial stone is no longer in evidence.

It was impossible to enter the Hospital grounds by the north gate and walk down the straight road to the Embankment, with exhibit after exhibit of horticultural sundries on each side, without realising the extraordinary ramifications of the horticultural trade, from gardening gloves to ponies' boots.

MESEMBRYANTHEMUM.

(*Continued from p.* 407.)

8.—CHEIRIDOPSIS, N. E. BR.

DESCRIPTIONS.

C. carnea, N. E. Br.—Tufted and stemless, up to 2 inches high when out of flower. Leaves one to two pairs to a growth, erect, their sheaths 4-9 lines long, their free part 9-15 lines long, and (when dried) 1½-2 lines broad and thick, of equal thickness throughout, flat above, keeled on the back, obtuse at the apex in side view, with a minute apiculus, glabrous, dotted along the edges and keel. Pedicel 1¼-3½ inches long, 1 line or more thick, bractless, glabrous. Calyx 5-lobed, glabrous; ovary-part hemispherical, about 3 lines in diameter; lobes unequal, the two longer 3-3½lines long, leaf-like, the other three shorter, broadly ovate and with membraneous margins. Corolla about an inch or rather more in diameter; petals 6-7 lines long "pink" Stamens numerous, erect, about 2 lines long. Stigmas 8, erect, 1 line long, subulate, apparently yellow. Fruit not seen.

Piquetberg Division: on a Kopje near Eende Kuil. Stephens and Glover 8733!

C. Caroli-Schmidtii, N. E. Br. (Fig. 216).—Plant about 1½ inch high, consisting of a number of crowded growths upon very short branches (¼-1 inch long) arising from a deeply descending rootstock, 4-6 lines thick. Each growth with 1-2 pairs of leaves ½-1½ inch long, 4-6 lines broad at the base, and 4-6 lines thick near the apex where the keel is slightly dilated, erect or spreading, shortly united at the base, flat and gradually tapering from base to apex above, keeled and much compressed on the back and obtusely rounded at the apex, in side view, entire, glaucous or whitish-green, conspicuously dotted. Flowers not seen, but represented in fig. 216. Pedicels of the fruit 3-9 lines long, with 2 small bracts at the base. Capsule closed 4-5 lines in diameter, hemispherical, flattish on the top, and when expanded 8-9 lines in diameter, with 10 valves and cells; valves about 2 inches long, very spreading or slightly reflexed, pallid; expanding keels contiguous for ⅔ of their length, diverging at the tips, with narrow, membranous wings and awn-like tips, all of the same pallid ochreous colour as the valves; cells roofed with stiffish submembranous transparent cell-wings not rising to the level of the expanding-keels, and the opening nearly closed by a large, globose, white tubercle, which forms a nice contrast to the pale ochreous colour of the pretty star-like capsule. Seeds ½ line in diameter, globose-ovoid, smooth, pale brownish, with a brown nipple at one end.

Mesembryanthemum Caroli-Schmidtii, Dinter and Berger in Engler, *Bot. Jahrb.*, vol. L. *Suppl.*, p. 587 (1914).

Fig. 216 is from a photograph by Mr. T. N. Leslie, taken in South Africa, and represents the plant of natural size when growing under favourable conditions, but I have seen plants that have been sent direct from their native locality with leaves scarcely half the size of those in the figure, owing to drought in their native place.

Great Namaqualand: near Aus, Dinter! Rogers! Pole Evans! Phillips!

C. cigarettifera, N. E. Br. (Fig. 217)—Perennial, tufted, about an inch high or rather more under cultivation, glabrous. In its natural resting state consisting of a tuft of withered, grey or brownish, cylindric, or cup-like sheaths, 4-5 lines long, truncate at the top, bearing two withered leaf-tips 2-3 lines long and enclosing a pair of erect, nearly free leaves, 5-7 lines long. Under cultivation the nearly free pair of leaves develop and become 8-20 lines long, 2½-4½ lines broad and 2-2½ lines thick at the base, where they are very shortly united, slightly narrowing upwards, obtuse, minutely apiculate, flat above, very convex on the back at the lower part, obtusely keeled at the apical part and the keel at the apex minutely denticulate; surface smooth, dull light glaucous-green, dotted, with the margins and sometimes the keel marked with a line of dots. The next pair of leaves are united at the base for ⅔-¾ of their length into an oblong-ovoid body 4-5 lines long, 4 lines broad and three lines thick, shortly 2-lobed at the top, the lobes being erect and like the free leaves in shape and colour, but smaller. From the centre of this body arises either a flower or, after a time a pair of nearly free leaves, and the body then withers to form a whitish or grey truncate, sleeve-like sheath. Pedicel 6-18 lines long, nearly 1 line thick, terete, light green, smooth, Calyx equally 5-lobed; ovary part hemispherical, about 1½ line long and 3-3½ lines in diameter, green; lobes reflexed, 3 lines long, 1½-1¾ line broad, oblong, obtuse, some with narrow membranous margins. Corolla 14-18 lines in diameter, expanding about midday even in dull, sunless weather, if the temperature is about 70°, but then the petals only spread out flat and are crowded, while in bright sunshine they are more lax and all recurved, or the two outer series are recurved and the inner series horizontal, 6-8 lines long, ⅔-¾ line broad, linear, obtuse, uniformly bright yellow, shining on the inner, dull on the outer surface. Stamens numerous, diffused and lax; filaments and anthers yellow. Stigmas 10, about 2 lines long, spreading, rather slender, plumose, white. Capsule about 3½-4 lines in diameter, flattish on the top, with 10 valves and cells; valves with 2 diverging, expanding-keels, with their wings reduced to membranous awn-like points; cells roofed with membranous cell-wings and the opening nearly closed by a large tubercle.

Mesembryanthemum cigarettiferum, Berger in Engler, *Bot. Jahrb.*, vol. XLV, p. 225 (1910). M. vescum, N. E. Br. in *Journ. Linn. Soc. Bot.*, vol. XLV, p. 89, pl. 6, figs. 15-18 (1920).

Laingsburg Division: near Matjesfontein, Austin! Brunthaler! Pillans!

Very few plants are so deceptive and so difficult to determine as this, for no one seeing it in its natural resting state would identify it as being the same as that I have figured under the name of Mesembryanthemum vescum, quoted above, yet the two are undoubtedly the same species.

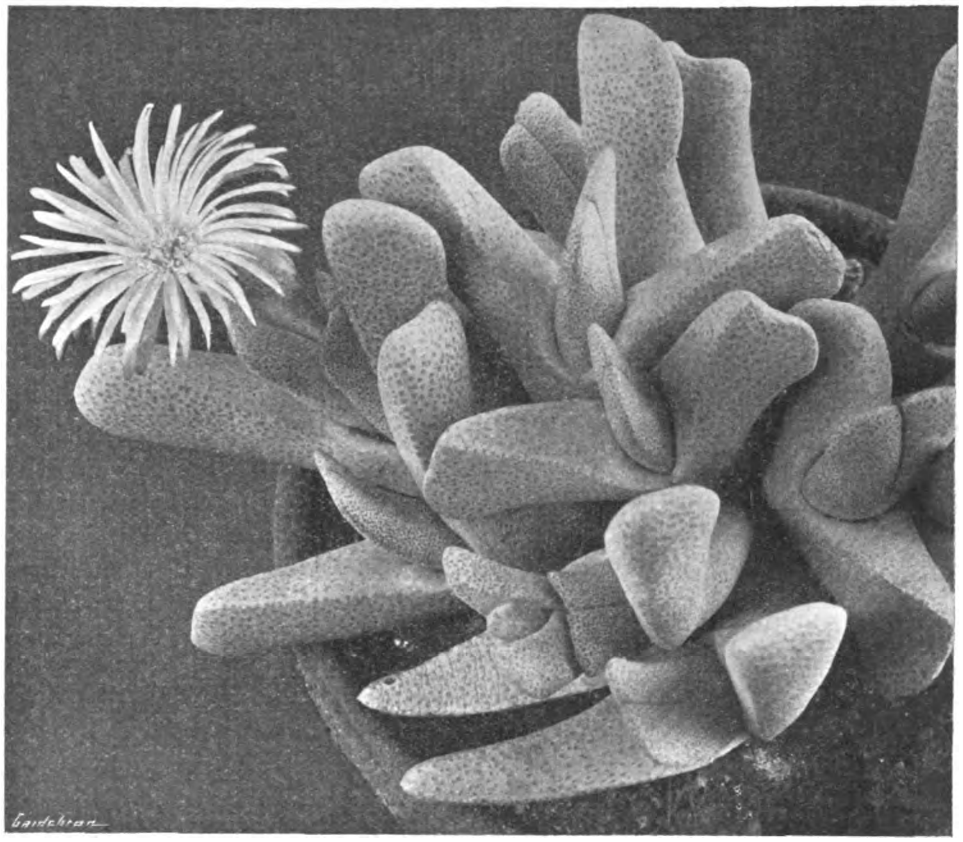

Photo by T. N. Leslie.

FIG. 216.—CHEIRIDOPSIS CAROLI-SCHMIDTII, N. E. BR.
Natural size.

From the imperfection of the original description of M. cigarettiferum I was misled into supposing it to be the same as M. pygmaeum, Haw. But Mr. G. Schawntes, finding that I had made this mistake, very kindly sent to me a photograph of a cultivated plant of M. cigarettiferum, which, however, differed so greatly from the description of that plant that at first I thought some mistake had been made in the name. At about the same time I received from a friend two plants in a resting condition collected near Matjesfontein and another of the same species from an unknown but different locality. These plants soon developed the tiny dormant leaves that were (when received) scarcely longer than the sheaths in which they were contained (see Fig. 217A), but grew out and became of the size above described (see Fig. 217B), and exactly as represented in Mr. Schwantes' photograph of M. cigarettiferum! As there were still some of the growths on the plants in the same dormant state as when received, I compared them with the original description of M. cigarettiferum and found them to agree perfectly with it, so that Berger evidently described M. cigarettiferum from an imported plant in its withered, resting condition, in which state the most conspicuous feature is the withered, grey, short, sleeve-like or cup-like truncate sheaths formed by the dead pairs of united leaves, each enclosing an undeveloped pair of nearly free leaves. Under cultivation this plant never appears to assume the same appearance as it does when at rest under natural conditions. Subsequent stages of the plant (as at Fig. 217C) demonstrated that it is identical with that I have described and figured under the name of M. vescum, from a plant sent to me by Mr. Pillans, from Matjesfontein. At Kew the same plant was cultivated, which was received from Matjesfontein from Mr. Brunthaler, so that it is probable that the Kew plants of M. vescum were even part of the original importation of M. cigarettiferum, although I was not aware of it, and the plant as I saw it could not possibly be identified with the description of that species.

C. cuprea, N. E. Br.—Leaves usually 2 pairs to a growth, up to 1½ inch long and 2 lines broad, each pair connate at the base, with the sheath up to 7 lines long, one ascending the other recurved, flat on the face, keeled on the back with convex sides, obtuse or subtruncate (probably in side view) and slightly serrulate at the apex, smooth. Peduncle 2½–3 inches long, terete, bibracteate at the base, bearing 1–3 flowers; bracts (probably really a pair of leaves) 10–12 lines long. Calyx depressed-crater-like, subequally 4-lobed; tube 2 lines long, constricted at the apex: lobes 4-5 lines long, two with membranous margins. Corolla 1½ inch in diameter, opening at midday; petals in many series, 6½–8½ lines long, linear-spathulate, acute, entire, coppery-red above the middle, paler below, golden yellow at the base, and rosy-purple on the back. Stamens erect, 1–2½ lines long; inner filaments bearded at the base, yellow; anthers blackish; pollen whitish. Disk annular, crenulate. Stigmas 12, suberect, 2 lines long, lanceolate, acuminate.

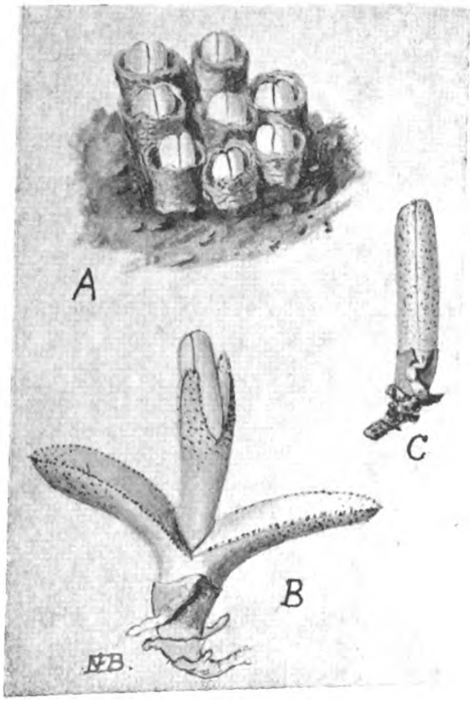

FIG. 217.—CHEIRIDOPSIS CIGARETTIFERA.

A., part of a plant as it was when first imported; B., a growth of the same plant in spring; C., a growth of the same plant when resting in summer under cultivation. All natural size.

(see p. 425.)

Mesembryanthemum cupreum, L. Bolus in *Ann. Bolus Herb.*, vol. III, p. 159 (1924).

Van Rhynsdorp Division: near Van Rhynsdorp, Watermeyer.

The above is translated from the original description given by Mrs. Bolus.

C. inconspicua, N. E. Br. (Fig. 218).—Growths when at rest (the only state in which they have as yet been seen by me) 2½–4 inches high, formed of two erect or ascending leaves united at the base into a solid body 9–12 lines long, 7–10 lines broad and 6–8 lines thick, the free part 2–3 inches long, 6–8 lines broad and 5-6 lines thick at the base, the flat face gradually tapering from the base to an acute apex, obtusely keeled all down the back and the keel and edges quite entire, not at all scabrid or ciliate under a lens, in side view either subparallel for most of the length and becoming acute at the apex, or the keel of one leaf slightly dilated at the apex and less acute, surface smooth, glabrous, uniformly glaucous-green with a faint bluish tinge, opaque, not at all shining, inconspicuously and thickly dotted all over with very small dots of a slightly darker green, easily seen with a lens, but very indistinct to the naked eye. Flower not seen. Pedicel of the fruit 2¼ inches long, 1½ line thick at the base and 2¼ lines thick at the apex, with a pair of small bracts at its very base. Capsule 9 lines in diameter when closed, flattish on the top, when expanded 15 lines in diameter, with 12–13 valves and cells; valves reflexed, pallid; expanding-keels parallel at the basal half, then diverging, their tips ending in awn-like points which incurve and cross one another over the centre of the valve.

Van Rhynsdorp Division: Near Van Rhynsdorp, Mrs. E. Rood!

Although I have not seen the flowers of this species, it is so distinct in its foliage and large capsule from all the others that are described or have been seen by me that I have no hesitation in describing it as new. There is no evidence of the somewhat pellucid margin or row of pellucid dots prevalent on most of the species along the edges and keel, no minute serrulation or scabridity on the apical part of the keel, and the dots seem to me more inconspicuous than they are on its allies, while the fruit is larger than that of any other species I have yet seen. *N. E. Brown.*

(To be continued.)

NOTICES OF BOOKS.

A Monograph of the British Lichens.*

This book is a more ambitious work than the *Handbook of the British Lichens* by Annie Lorrain Smith, F.L.S., compiled by her a few years ago. Part II is as bulky as *The Student's Handbook of British Mosses*, by H. N. Dixon, and on similar lines, but though there are sixty-three plates in both books, at the end, that on Mosses represents a far greater number of species.

The subject of Lichens is highly romantic in the plant world, since two distinct classes of plants have combined to live together in symbiotic amity for their mutual good. The green, or blue-green gonidial Algae could scarcely be expected to live on the bare trunks of trees, the slates of houses, or the bare stones of mountain tops without the protecting investiture of the fungus, which looks like a parasite by the way it closely surrounds its chlorophyll-bearing partner. Both Fungus and Algae reproduce themselves separately, and small green gonidia are given off from the parent plant at the same time as the fungus releases its spores, and a partnership is formed immediately to found a new colony. Parasitism does occur, for the members of one genus may live on the body of others, including eight species of Lecidea, and three species of Buellia.

The genera are not large as a rule, but Lecidea runs to 211 species, occupying 103 pages. Several of the old genera have been broken up, such as Verrucaria, and Lecanora; indeed, the latter does not occur in the index, although there are frequent references to it in the body of the work.

Synonyms are numerous, as might be expected in working up a monograph from the Lichen herbaria of early workers in a class of plants that requires so much use of the microscope. A glance at the plates would give one the idea that many of the Lichens have a parenchymatous tissue, whereas the fungal part is made up of closely interlacing hyphae only, while the cells of some of them are greatly thickened resembling sclerenchyma. The wonder is that they can grow into such definite forms as they do. The spores in an ascus may vary from one to eight, sixteen and thirty-two; while the spores themselves may be one- to thirty-three-celled. They undergo a considerable amount of modification for the spores of Sarcopyrenia gibba greatly resemble the two-bladed propellers of an aeroplane.

The author has evidently had plenty of unnamed or wrongly-named material in the British Museum, for she has described twenty-four new species, besides sub-species, varieties and forms of Biatorina in a genus extending to forty-one species. Other genera have received additions at her hand, some of them having only one locality to their credit in the whole of the British Islands and the Channel Isles, such as Ben Lawers; walls of Old Machar Cathedral, Aberdeen; Ballynahinch, Galway, etc. Verrucaria Lorrain-Smitheae has been named after her. The book is a monument to the author's patience and the editing is equally creditable. A few of the place names are questionable, Loch-na-gat is Lochan a' Chait (Loch of the wild cat), Ben Lawers; Craig Calliach, should be Craig Caillich or Craig Cailleach (old woman crag); Mael Graedha is probably Mael Ghaordaidh. Few of the modern celts themselves can pronounce these names, and fewer can spell them correctly. Petit-Pot Bay, Guernsey, should be Petit Bot Bay.

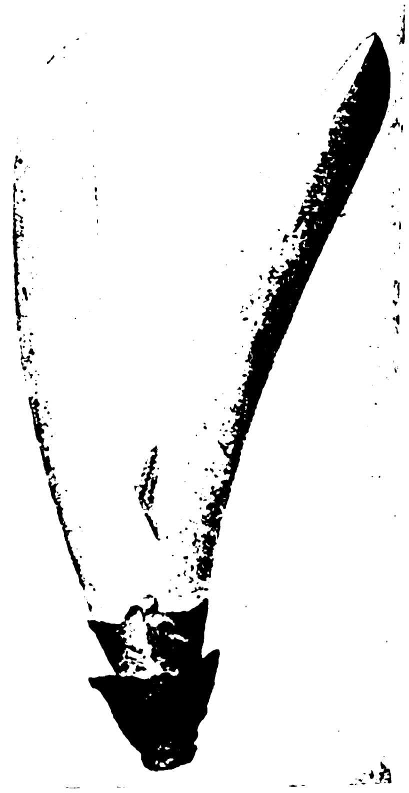

FIG. 218.—CHEIRIDOPSIS INCONSPICUA.

A single growth, resting. Natural size.

MARKET FRUIT GARDEN.

Fruit prospects, as so often happens, underwent a change for the worse during May. The cold, wet, sunless weather of the first half of the month was most unsuited to the fertilisation of bloom and to the development of such young fruits as had already set. Plums dropped to a considerable extent, and do not now appear to promise more than an average yield. Trees of Victoria carry a very full crop, and those of Monarch quite a good one, but other varieties are on the light side with me, though none are quite barren. Cherries have set very poorly indeed, but Pears, so far, are plentiful. Apples lingered in bloom for an unusually long period, and had the worst of weather for pollenation. It is too early to say definitely how they will turn out, but they do not appear to be setting well. Bush fruits of all kinds are looking very promising. As Black Currants are said to have run off badly in the district, I consider myself fortunate in having a good crop.

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* *A Monograph of the British Lichens. A Descriptive Catalogue of the species in the Department of Botany, British Museum.* Part II., second edition, revised by Annie Lorrain Smith, F.L.S. Printed by Order of the Trustees of the British Museum. Sold at the British Museum, Cromwell Road, S.W. 7, and by B. Quaritch, Ltd., Dulau and Co., Ltd., The Oxford University Press, Wheldon and Wesley, Ltd., London; also by Oliver and Boyd, Edinburgh, 1926. Price £1.

Under the influence of the warmth and sunshine of the latter part of the month, vegetation made rapid progress, and most fruit trees now look exceptionally fine in foliage. The dry spell also afforded, at last, a good opportunity to kill weeds and get cultivated plantations clean.

Scab-resisting Apples.

The weather of the early part of May was of just the kind to favour the development of scab, and it has made its appearance on the leaves of a good many varieties of Apples. The season will, therefore, test the efficiency of any preventive measures that have been adopted. When the bloom lingered so long, I felt glad that I had given an application of normal Bordeaux mixture before it opened. The second spraying was done as soon as possible after the fall of the petals, but was interrupted by frequent showers. The excess lime formula, used on this occasion, proved a good deal more troublesome than the normal mixture. Slaking and thinning down the extra amount of lime is a slow and rather difficult business, and the wash causes frequent blockings of the nozzles, in spite of careful straining. However, it has so far caused no scorching of the leaves, which is a great comfort. There is no doubt that the treatment has given good control of the disease up to the present. Even those tender varieties which received only the first spraying (before blooming) are showing the benefit. There are some spots of scab to be found on the leaves, but it is much less in evidence than it is on trees that have not been sprayed at all. Half of a block of Cox's Orange Pippin was sprayed after blooming with lime-sulphur, one in one hundred, with arsenate of lead, as an experiment. Up to the present this has not caused any leaf-drop or injury. If it proves to have done any good I should be inclined in future to use this wash instead of the excess lime Bordeaux mixture after blooming on all varieties, because is it so much less troublesome to mix and apply.

I have been wondering what it is that renders certain varieties resistent to scab. Is it the texture of the leaf, or is it some quality in the sap which is unfavourable to the germination of the disease spores? The curious part of it is that the same varieties are not resistent in all districts. All growers, however, seem to agree that Charles Ross is a scab-free variety. I have some trees of this Apple dotted about amongst trees of Cox's Orange Pippin that are badly affected by scab; and in another plantation there is one row of Charles Ross dividing blocks of Worcester Pearmain and Cox's Orange Pippin. It seems extraordinary that Charles Ross can remain clean, as it does, when so closely surrounded by such a plentiful source of the disease. I wonder whether immunity from scab would be imparted to a scabby variety top-grafted on Charles Ross. At one time, Bramley's Seedling was never seriously disfigured by scab, but in the last two or three years it has been badly affected in some districts. I do not know whether it is becoming less resistent, or whether it is simply the result of three bad scab years in succession. Beauty of Bath and Newton Wonder are other varieties which with me, used to be free from scab, but now are liable to it. Royal Jubilee is quite immune from the trouble; and other varieties which, on my place, are hardly affected at all, are Lane's Prince Albert, Rival, Mr. Gladstone, Early Victoria and Queen. The worst varieties for scab are Devonshire Quarrenden, Worcester Pearmain, Cox's Orange Pippin, Duchess of Oldenburgh, King of the Pippins and Allington Pippin. James Grieve and Lord Grosvenor are liable to the disease, but for some reason are very easily protected by spraying. Worcester Pearmain and Allington Pippin are the most obstinate in this respect.

Results of Manuring.

Most of my bush fruits were manured in winter with a meat and bone-meal, at the rate of about ten hundredweight to the acre, followed in early spring by one to two cwts. per acre of sulphate of potash. This makes a balanced manure containing nitrogen, phosphate, and potash, and it gives excellent results. I used what farmyard manure I could obtain locally, applying a light dressing and supplementing it with half the amount of meat and bone-meal mentioned above. In this case no sulphate of potash was added as there is enough potash in the farmyard manure. The heaviest crops of Black Currants, and the longest bunches, are on bushes which received the artificial manures only, but this is probably due to other causes. The bushes which had the farmyard manure are older; and I must confess that, if they are not carrying quite such a heavy crop, they are making more growth. I am not convinced that farmyard manure is the absolute necessity for bush fruits which many growers consider it to be. I think that other organic manures give nearly, if not quite, equal results, if only they are properly balanced, a point which is often missed. I recently saw it stated, for instance, that wool shoddy did not give such good results with Black Currants as farmyard manure. This is not surprising, because it supplies nothing but nitrogen. If phosphates and potash were given in addition, I believe the result would equal that obtained with farmyard manure. It seems to be necessary that the nitrogen should be in organic form; but I think that phosphates and potash may quite successfully be supplied in mineral form. On some soils the mechanical effect of a bulky dressing of farmyard manure is important; but on most soils quite a light dressing of this manure suffices to keep the soil in good working and moisture-holding condition; and the actual plant foods can be given cheaply by means of a supplementary dressing of artificials.

The younger Apples and Plums necessarily received the same treatment as the bush fruits amongst which they stand, but all my older trees are now either entirely in grass or on grass strips with cultivated alleys between. I continue to manure these through the grass in the manner previously described as having proved successful. This year, however, I made a change in the treatment of the plantations with grass strips. Instead of using organic manures applied chiefly to the cultivated alleys, I gave a complete mixture of mineral fertilisers entirely on the grass strips. This has produced a very strong growth of grass, and had a marked effect in smothering out weeds. The grass is now being mown and all laid on the cultivated alleys as a mulch. I believe that it will quickly disappear into the ground and form a cheap and useful dressing. If it does not find its way in, it will have to be ploughed in during the winter. I have great hope of this method of manuring.

Arsenic on Apples.

I was glad to see, in a recent issue of *The Gardeners' Chronicle* that Canadian Apples have been cleared from any suspicion of carrying a harmful amount of arsenic. I believe that all Empire-grown fruit is equally innocuous, and that the trouble is confined to American Apples. Unfortunately, the Americans do not appear to be taking any serious notice of the scare created by their fruit. An American growers' journal which I receive has so far made only two references to the matter. One was an editorial suggesting that the scare was a "stunt" engineered in this country to discourage the purchase of American Apples. This, of course, is absurd, as all thinking growers realise that the scare is likely to prejudice the sale of Apples from all sources, home-grown as well as imported. The public, in nine out of ten cases, do not known whence the Apples come, and they are easily alarmed into going without the fruit altogether. The other reference was to the effect that one of the big packing houses in America is installing machines to wipe the outward and visible signs of arsenate of lead off the Apples before they are packed! The trouble is that there are several broods of codlin moth each summer in America, and the growers therefore spray four or five times to protect the crop. The last application, therefore, comes within a few weeks of gathering. Whatever their difficulties, however, the growers are not justified in sending us poisonous fruits. *Market Grower.*

PRESERVATION OF PEARS.

The current number of *La Pomologie Francaise* (May, 1926) reprints an article by M. le Professeur Hutinel, which may be of interest. He records favourable results from soaking the fruit (Pears) in a weak solution of "Chinosol," a derivative of chinolin or quinolin, which is used in medicine, both externally and internally, as an antiseptic. This he employs in a dilution of 1 per 3,000, the same lot of solution being used for three or four batches of fruit in inverted garden cloches, each of which will hold twelve litres, or about three gallons. Exposure to the solution is for eighteen hours or so, when the Pears are taken direct to the fruit trays without drying. At such dilution, an ounce of the drug would make about eighty-four gallons of lotion; the present retail price is 4s. per ounce, a marked rise on older prices, perhaps to protect an apparently non-existent British industry, but, anyhow, on the small scale, the cost is not prohibitive.

His first trials were upon Pears which had already been in storage and had begun rotting in numbers. These, some of which had already patches on them the size of a shilling, were bathed for twenty hours in the lotion; they were eaten from December to March; the quality was found good and free from disagreeable smell and taste, when the neighbourhood of rotted patches had been cut away. The decayed patches had become leathery and corky in nature, and progress seems to have been arrested. In 1921, he commenced treatment at gathering time, by soaking all suspicious examples, those scabbed, damaged by wasps or by birds, etc. "All these kept very well, ripened somewhat tardily, but kept their exquisite flavour."

For the last few years I have been using the same drug upon my indoor vines with a view of controlling mildew; before sprouting occurs the rods, cut ends and buds are painted all over with a 6 per 1,000 solution. Being put on with a brush, the appreciable cost is rather that of the gardener's time than of the material used. Chinosol forms an absolute compound with copper salts and will not attack copper sprayers.

I may add that M. Hutinel also tried sulphur dioxide (burnt sulphur vapours)[*] without good results; personally, I have found formaldehyde vapour likewise of no value; probably neither has sufficient penetrative power. The length of exposure given in the bath should be emphasised—the time factor in antiseptic actions is all important, and seemed to be ridiculously overlooked during the war. *H. E. D.*

FRUIT REGISTER.

APPLES WHICH DESERVE TO BE MORE POPULAR.

There are certain Apples which possess every quality that should appeal to public favour, either for the commercial plantation or for the private garden, or both, but which, in spite of their good qualities, remain in the background. One can scarcely appreciate that of which one has never heard or seen, and many of these have never made their appearance in sufficient quantity to attract attention.

Among those deserving of a better fate than that of obscurity may be mentioned Alfriston, which, if for no other reason than its excellent flavour when cooked, should find a foremost position among the culinary varieties in private gardens, and is worthy of consideration from a commercial point of view especially, as it is also a good cropper. When, in addition, it is recognised that it is quite a sizeable Apple and one of the longest keepers—if carefully stored remaining in good condition until April—

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[*] Sulphide solutions have been advocated for preserving fruits in bottles. On consulting authorities who study vitamins, it appears likely that these highly important attributes of fruit would be destroyed by such means, though no actual data are available. In the case of Chinosol treatment it would appear unlikely that the chemical penetrates beyond diseased parts, so that vitamins in the edible portion could not be affected, even if Chinosol has such an effect.

one wonders that it has not been more largely planted in the past.

Adaptability to peculiar conditions sometimes renders a variety particularly suited to certain districts in which those conditions exist. This is the case with Barnack Beauty, which does not object to a chalk subsoil; one might almost go so far as to say that it appreciates a situation where this condition is fulfilled. This is a culinary variety which cannot equal the former for length of keeping capacity, falling short, however, only by a month. It does, nevertheless, surpass not only this variety but most others also in the fact that its flavour after it has been kept for a considerable time shows little sign of deterioration, but remains almost as fresh as when first gathered.

Companion to this variety, so far as suitability for growing on a chalk subsoil is concerned, is Dr. Harvey or Waltham Abbey, which is, however, grown sufficiently freely in some districts to place it beyond the scope of these notes.

Lack of size is undoubtedly a big defect in a culinary Apple, but for a dessert variety large size is not altogether essential, indeed it may prove a disadvantage. It is difficult, therefore, to estimate the real value of a variety which is equally valuable in the dessert dish and in the kitchen. Blue Pearmain, which was known and grown in America a hundred years ago, is such a dual purpose Apple. It is in sesaon during the first three months of the year. Hardiness is one of its qualities, as is also heavy cropping capacity. In spite of its age, it is worthy of more extensive planting.

One of the newer varieties which certainly deserves greater appreciation in the business orchard no less than in the private fruit plantation is the culinary Apple, Arthur Turner. In addition to its large size, its chief asset, commercially, is its attractive appearance, which often goes further towards public favour than do qualities of far greater importance. It is a comparatively short season Apple, being at its best during October and November.

Baumann's Reinette and Baxter's Pearmain are two varieties both remarkably fertile, though the fruit of the former is of somewhat poor quality. These are dual purpose Apples, each having a flavour which appeals to many, whilst they are also useful in the kitchen. Neither is large, though Baxter's Pearmain is somewhat the larger of the two. This variety is undoubtedly worth a larger share of public favour, whilst Baumann's Reinette, for its cropping capacity alone, is a variety not to be despised. Both come into season towards the end of the year, and continue in use until the first or second month of the new year.

Belle de Boskoop has not, so far, found very great favour in this country. It is very highly classed in some parts of Europe, and probably when better known will be more extensively grown in this country. It is both a cooking and an eating Apple, being rather big, though it scarcely can be called large, and has an advantage over many varieties in that it is regular in shape. It is probably of greater use for commercial purposes than for the private garden. The fruits will keep in good condition until April.

For use in private gardens, Belle de Pontoise may be suggested. This is a purely cooking variety, and the fruit is large, but not too well shaped. Like most of the others mentioned, it is a very good cropping variety. The season of this Apple is not one of the longest, being from December until February. It is a variety which can scarcely be recommended for commercial purposes. *J. W. Morton.*

VEGETABLE GARDEN.

THE SAVOY

This popular vegetable is available for use from September to March, and in order to make sure of a succession it is advisable to select early, mid-season and late varieties. I know of no better selection for the purpose than Best of All, Drumhead and Late Drumhead. Plants of these three sections raised from seeds sown at the same time will not heart before their season, and everything is to be gained by having a strong plant when winter sets in. If the plant has not completed its growth in autumn it will develop into a "blower," when growth commences the following year. The soil of the seed-bed should contain plenty of lime, as a safeguard against club-root, it being recognised that the plant is most susceptible to attack by this disease in its seedling stage.

When the seedlings are large enough to handle they should be planted in a nursery bed of good soil, allowing each member an all round distance of four inches. Further attention is not necessary until the plants are ready for placing in their permanent quarters. These should be selected with some care. I consider that they should bear three essentials, viz., a fair exposure to light; the ground should contain a generous food content and be firm in texture, for firmness of staple means firmness in the Savoy head. Where early Potatos are lifted from rich land it is possible to plant Savoys as a succession crop without the addition of more farmyard manure.

The ground should be forked over and trodden firmly so that an even texture may be secured. The crop may also follow Broad Beans or early Peas, and if the ground for these crops was well fertilised there will be no need to incorporate further supplies of manure.

Each plant should be allowed a space of eighteen inches on all sides. The subsequent details of cultivation are very few. They consist in the frequent use of the Dutch hoe, and earthing up the plants to a height of four inches when they are half-grown as a support against winds and as a conserver of moisture in times of drought. If decaying leaves are removed in late autumn and winter it will prove conducive to the formation of clean, sound Savoys. *Geo. H. Copley, N.D.H*

HOME CORRESPONDENCE.

Colour Charts.—In your issue of May 1, p. 316, a new colour scale is adversely reviewed; it seems a great pity that Robert Ridgway's *Color Standards and Color Nomenclature*, Washington D.C., 1912, published by the author, Robert Ridgway, remains unknown in this country. In his scale the spectrum circle from red through orange, yellow, green, blue and violet back to red is divided into seventy-two hues, of which every intermediate hue only is shown by a sample colour in the plates. Thus a trained eye can distinguish another hue between each of the thirty-six samples given. These hues of pure colour are each tinted up to white and shaded down to black till the whole range of colour is covered by 1,115 sample colours between each of which it is possible for the trained eye to distinguish an intermediate colour which differs from either of the samples adjoining. To each of these scientifically determined colours a name has been given with painstaking care, so that the choice of name most nearly represents the colour to which that name has been attached in the past. Anyone interested in the subject should refer to the prologue which gives a most interesting account of the work of preparation of the scale and of all the endless difficulties met with in preparing the sample colours for the book. It would appear that this, the only standard scale of its kind, ought now to be adopted by gardeners, botanists, naturalists and any others who require a standard to give their descriptions or written intentions in regard to colour a definite meaning. *P. P. Behrens, Lt.-Col., R.E., Bemerton House, Salisbury.*

Old Florists' Flowers.—The report of the ninetieth annual exhibition of the North of England Tulip Society (page 412) shows, by the dwindling number of exhibitors, the danger there is of the old florists' Tulips, Auriculas, Carnations, etc., being, in time, lost to cultivation, and it seems appropriate that the R.H.S. should take steps to preserve as complete a collection as possible of these beautiful florists' flowers in their gardens at Wisley. *T.*

SOCIETIES.

FÉDÉRATION HORTICOLE PROFESSIONNELLE INTERNATIONALE.

(Concluded from page 412).

The hopes raised by M. Rabier's excellent management of the proceedings on the first day of the Conference were doomed to disappointment. When French, Belgian and Dutch delegates get acutely warmed up on the subject of the American Quarantine Order No. 27, they are difficult to hold, and even such an able president as M. Rabier could not too severely check his compatriots' flow of language, although he imposed a severe check upon "replies" that seemed likely to develop into speeches. However, the proceedings ran their full course on the second day.

About thirty of the international delegates were present in the morning, and, as usual, the British section appeared in good force and to time, thus setting a good example to the other nationals. The audience, composed of interested visiting horticulturists, was a very small one when proceedings began, but it improved towards lunch time.

The first business was to receive the report of the auditors, who were entirely satisfied with the correctness of the treasurer's financial statement.

For the Special Committee regarding international transport, Mr. J. Arluison reported that the subject had been considered so far as time permitted, and that arrangements had been made for obtaining the necessary particulars in time for the presentation of a considered report to the Conference of 1927.

A consideration of pathological questions afforded M. Charles Pynaert an opportunity of again raising the inevitable American Quarantine Order, which the Conference frankly regards as a prohibition measure. Its effect is certainly prohibitive, and Belgian, French and Dutch growers are undoubtedly suffering severely as a consequence. M. Pynaert stated that when Mr. Marlot, of the American Federal Board, was in Europe there appeared to be some reason to hope that the American restrictions against European plants would be relaxed somewhat, but this hope had not materialised. Hope for better conditions, *i.e.*, free imports, subject to certificates of health, appeared now to centre in the activities of American horticulturists, very many of whom desired to obtain plants of many kinds from European countries. M. Pynaert—who has championed the cause of European horticulture in a splendid way, in America as well as at home—advocated peaceful invasion rather than any form of reprisal as suggested by some of the French delegates, and urged that each delegation should work, through chambers of commerce, embassies and governments, to secure an easement of the American quarantine arrangements for particular subjects.

Mr. Krelage stated that the Dutch growers were in agreement with the conclusions arrived at by the international committee which discussed the subject in February, and as set forth in the resumé just given by M. Pynaert. He stated that already the Dutch growers were approaching their members of parliament on the matter, and he expressed the belief that much good might be done if each national delegation took measures to secure representation on the national committees of the International Chamber of Commerce, and so keep in touch with this and other international questions affecting horticulture.

The British section did not take a prominent part in the discussions, but when the French delegates suggested prohibitive measures against America the British delegates objected, asserting that the policy of their government was free trade, and as horticulturists they believed in free interchange of horticultural produce between all concerned. The whole of the morning session was taken up by discussions on the vexatious "American" question, and although some good may result, it is nevertheless foolish to anticipate much relaxation in view of the very definite prohibitive stand taken by the American authorities under the guise of protection against plant diseases and pests.

The third session opened with an address by Mr. Alexander Galt, of Leeds University, who very ably pleaded for international federation of all scientific bodies now working for the good of horticulture and agriculture. At present there was a good deal of overlapping, while the publication of the results of much good research work was often unduly delayed. He pleaded for swifter communication between the various national research workers, and suggested that the F.H.P.I. might take steps to secure such a federation of ideas and work, to the advantage of international horticulture.

The Conference agreed to the principle set forth by Mr. Galt, and passed a resolution to the effect that the representatives of each country should approach their respective Ministries of Agriculture with a view to obtaining international co-operation and co-ordination in agricultural and horticultural research work.

"Dumping," and disloyalty in regard to prices, next came under discussion, and it was agreed that traders in association with the F.H.P.I. would not sell to foreign amateurs at prices below the average retail rates obtaining in the customer's country. It was agreed that "dumping" of horticultural produce was not so bad as formerly, but opinions were divided as to whether this was due to improved business morality or to lack of stocks.

British delegates did not discuss customs duties, again asserting free trade everywhere was the ideal policy for horticulture.

At this point, Mr. A. Brown, the President of the Florists' Telegraph Delivery Association of America, who was accompanied by Mr. Pochelin, the secretary, was invited to speak. He outlined the work of the Association, and said he was on a visit to Europe for the express purpose of internationalising the idea of ordering flowers by telegram. Stated briefly, and as is now fairly well known, the idea is that a person in, say, New York, desires to send a present of flowers to a friend in London; he gives his order to a New York florist, stating date of delivery and the amount he is willing to spend. The New York florist cables to a London florist who is on the F.T.D. list, and who executes the order on a commission basis, having satisfied himself that the florist who sent the cable is, like himself, a member of the F.T.D. The original American Association now numbers 3,000 members, and the British branch, 214. Mr. Brown maintained that the development of the telegraph delivery business in America had doubled the output of American florists, and last year was the means of providing five million dollars' worth of orders, while in the present year, to the end of April, similar business amounted to three-quarters-of a-million dollars.

At the close of Mr. Brown's forceful address, M. Turbat asked whether the F.T.D. desired admission to the F.H.P.I., and pointed out that, being of international character, admission would be possible if application were made. Mr. Brown was rather nonplussed, and stated that he had taken advantage of the opportunity so kindly afforded him of spreading the gospel of the F.T.D., but was not prepared to apply for the inclusion of his Association in the International Federation; he asked permission to let the matter remain in abeyance until his committee could consider it; meanwhile he thanked the Conference for its interest in his observations. Most of the delegates present seemed to think that the inclusion of this virile American association within the F.H.P.I. might serve several good purposes, and would certainly provide one point of attachment with American horticulturists.

From America we passed to Rome. Mr. Krelage referred to work being carried on in Rome for the purpose of securing one standard of pathological service with certificates of health of equal value everywhere. At present there was a general agreement as to this standard, but some countries had yet to be converted. He hoped, however, that all the western European countries would have a similar pathological service with regard to imports and exports of plants, etc., and that the certificates passed by the service would be honoured and trusted among those consenting countries, thus saving a great deal of time and irritation and conducing to business. The Federation has discussed this principle on previous occasions and good results appear to be in view.

Certain traders consider the annual conference of the F.H.P.I. of little value, and probably do so because the combined efforts of the delegates from many nations do not create a new and ideal horticultural business world on the instant. There are others of the saner sort who believe that only good can come of these annual international gatherings. Certain things have come to pass as a result of patient effort over several years; improvement in certain directions is obvious—but Rome was not built in a day! Then, too, who is there so wanting in reason as to assert that these annual discussions, these yearly meetings of old friends and acquaintances, these opportunities for creating new business associations, these kindly hospitalities, are of none effect upon the amity of nations, the brotherhood of mankind?

And so the Conference of 1926 draws to an end. The delegates are getting somewhat tired, but they brighten up when M. Rabier gives a graceful welcome to the Spanish visitors, and points out that the Spanish societies are endeavouring to arrange their rules in a way that will enable them to come within the fold of the Federation.

M. Ketten, with equal grace, withdrew the application to hold the Conference in Luxembourg next year in favour of Switzerland; his motion would have been defeated in any case, so he was wise as well as gracious. So the Conference of 1927 will be held in Geneva, when M. Vache will be the President, and M. Ketten, the Vice-President, and probably the Luxembourgers will entertain the Conference of 1928. Meanwhile, and with amazing rapidity, MM. Turbat and Barbier were reappointed co-secretaries, and M. Sauvage as Treasurer, and almost before the President's gavel had sounded the agreement to these appointments, Mr. Alfred W. White was proposing a vote of thanks to M. Rabier for his genial presidency of the whole of the Conference proceedings; representatives of the other nations present added their felicitations. M. Rabier, with his usual grace, eloquence and humour, replied, and the Conference of 1926 was over.

The delegates received the utmost kindness and hospitality at the hands of the French horticulturists, and in various ways expressed their indebtedness and pleasure. After the Conference, a series of visits was arranged to places of horticultural interest around Paris, to the Vitry and Versailles districts, to Orleans, to Angers and Ussy, but of these there is no time or space to write at present.

SOCIÉTÉ NATIONALE D'HORTICULTURE DE FRANCE.

On the Cours la Reine, where so many famous horticultural shows have been held, the French National Horticultural Society arranged a large exhibition which was opened on May 28 by the President of the French Republic, and continued for several days.

In the large part of the show arranged out-of-doors the display of garden furniture, tea houses, stone ornaments, fountains and horticultural sundries occupied a large amount of space, but from a British point of view the exhibits of trained fruit trees provided a special attraction, notably the palmette trained specimens shown by Messrs. Nomblot, of Bourg-la-Reine; some low-trained Apples had only two branches, each six yards long.

Immediately within the entrance to the long, light building, Messrs. Croux and Sons arranged banks of finely-flowered Rhododendrons, the varieties including many with which the British gardener is familiar.

Hydrangeas were exhibited extensively and several new varieties were forthcoming, but none of these appeared to be an advance on known kinds, although we have rarely seen such enormous heads of bloom as those produced on the varieties Suprême, Pasteur, Hercule and Madame A. Barrillot, the last of deep pink colour. The leading exhibitors of Hydrangeas were Messrs. Mouillère and Sons, Messrs. Cayeaux and le Clerc, the Director of the town gardens at Havre, and M. Cravouiller, of Tours, who had a large group of Madame A. Barrillot.

British visitors found the exhibits of Roses very interesting, as the climbers were arranged on trellis work, as in a garden, while dwarfs, standards and pillars, and large weeping standards were also displayed in a garden setting. The Roses showed good cultivation, but it was evident that Paris had received no more favours from the sun than England, consequently new varieties were not seen to advantage. Familiar varieties were found in the collection submitted by Messrs. Moser and Sons, Versailles; Excelsa, Alberic Barbier on arches and pillars, and a bed of Verdun, of deep, rich colour, were notably good. Souv. de Claudius Pernet, a fine standard of Excelsa, Rev. Page Roberts, Independence Day and Una Wallace were varieties noted in a splendid collection of Roses staged by Messrs. H. Dufresne and Sons, Vitry. The same firm grouped Roses on the opposite side of the building, where their widespread standards of Hiawatha, Blush Rambler and Paul's Scarlet Climber were greatly admired. Another goodly collection of Roses, from Messrs. Lévêque and Sons, Ivry, contained freely-flowered examples of Lady Alice Stanley, and the crimson Etiole d'Hollande.

Messrs. Vilmorin-Andrieux and Co., Paris, contributed the most outstanding display, considered both from its extent and its brilliant colouring. This famous firm filled a very large central area with masses of flowering plants raised from seeds. Although the majority of plants were annuals, many other kinds which may be treated as such were included. Viewed from either end, this exhibit presented a splendid colour effect, the colours being provided by masses of variously-coloured Stocks, Petunias, Salvias, Poppies, Marigolds, Tropaeolums, Antirrhinums, Cornflowers, Leptosyne Stillmanii, and Chrysanthemums, with tall Foxgloves rising above the lower plants in the surrounding portion of the display. The central grouping consisted of Nemesias, of startlingly rich and deep colouring, many of the shades appearing to be quite new. Along the sides of the hall, near their floral display, this firm disposed a collection of vegetables, fruits and salads, wherein the Cantaloupe Melons, long-rooted Turnips, Blanche de Touraine, Lilloise, Quatre Saissons and Chavigne Lettuces attracted our attention; the last-named is one of the loose, Cabbage varieties.

M. Férand, Paris, designed and planted an alpine and water garden of considerable beauty, but the association of hardy and tender subjects did not meet with the approval of the numerous British visitors. Sedums and Irises were very pleasing, and so was a drift of Ionopsidium acaule. M. A. Kolb presented a quaintly-designed Japanese garden, and contrived to get a great deal of effect in a small space.

Some brilliant effects were produced by Irises arranged in wide tin vases, but the exhibits would have been improved greatly had the vases been hidden. Messrs. Cayeux and le Clerc were large exhibitors of bearded Irises, and so were M. A. Baumann and Messrs. Vilmorin-Andrieux and Co.

Fruit trees in pots, notably Cherries, Figs and Plums were exhibited by the Versailles School of Horticulture together with Caladiums and Hydrangeas.

An annexe was devoted to Orchids, but, judged by these exhibits, our French friends have much to learn in regard to the cultivation of these plants. Some capital Vandas and Cymbidiums were prominent in M. L. Perrin's group, while M. Jules Potin, of Neuilly, contributed Brasso-Cattleya Shilliana, Cattleya Tityus, Laelio-Cattleya Canhamiana, Miltonia Bleuana and Odontoglossum citrosmum.

One of the best displays was from M. J. Guiten, Argenteuil, ; this was bright with Odontiodas and richly-hued Odontoglossums, while Phalaenopsis Rimestadiana, Cattleya

Craveniana and Dendrobium atro-violaceum were conspicuously good. A Gold Medal *avec felicitations* was awarded to this exhibit. M. H. Le Blevenec and M. U. Lecoufle, Boissy also exhibited Orchids, the latter showing Miltonia Memoria G. D. Owen, Laelio-Cattleya Fascinator and Masdevallia Harryana.

GUILDFORD AND DISTRICT GARDENERS'.

By the kind invitation of Sir Frederick Hall, M.P., about one hundred members of the above association paid a visit to Grafham Grange Gardens on May 29. Included in the party was Mr. George Carpenter from West Hall, Byfleet; another member was from Alfold, in quite the opposite extremity of Surrey.

Mr. Saunders, Sir Frederick's head gardener received the visitors and conducted them around the grounds, the gardens and the houses. There is a good deal of glass at The Grange—Melons, Peaches, Grapes and Nectarines, as well as Orchids, are grown in abundance. Outside, naturally, at the end of May, gardens have not the attractiveness of earlier or later periods. Spring floral delights have vanished and summer glories have not arrived. There were, however, many points of beauty in the gardens and their surroundings; the view across the large ponds to the Rhododendrons set in a background of Beeches and Conifers was entrancing, as was also the view from the front of the mansion looking toward Pitch Hill—one of the finest view points on the Surrey hills.

Having enjoyed the stroll around the grounds, every one was ready to do justice to tea, which the kindly forethought of Sir Frederick and Lady Hall had provided. The President. Alderman W. T. Patrick, J.P., thanked Sir Frederick for the favours he had shown the association, and expressed the opinion that gentlemen having such fine estates might do a great deal to foster a kindly feeling between various classes of society by following his excellent example. Mr. Saunders was also thanked for the great trouble he had taken for the convenience of the visitors.

The journey home was via Hascombe and Godalming. This included bye-roads and views of delightful rural scenery. Near Hall Place, along the roadside, were numbers of Chestnut trees richly decked with red blossom, and white Rhododendrons spangled the hillside at Park Hatch. The last part of the journey was over the stretch of road eulogised by William Cobbett even on a winter's day, November 29, 1822: "Everybody that has been from Godalming to Guildford knows there is hardly another such a pretty four miles in all England. The road is good; the soil is good; the houses are neat, the people are neat; the woods, the meadows, all are beautiful."

Cobbett wrote thus when he had rain for his companion; the Guildford Gardeners experienced one of the all too few pleasant days of May, so no wonder the outing was enjoyed.

MORAY FIELD CLUB.

In glorious weather, the members of this Club recently spent a memorable day at Blackhills, Morayshire, the residence of Mr. T. North Christie. On arrival the visitors found the house and surrounding gardens and policies looking their very best. Unfortunately, a prior engagement prevented Mr. Christie from receiving the visitors in person, but he left instructions to his gardener, Mr. Dunbar, and the forester, Mr. Mutch, to guide the party round. The outstanding feature of the visit was the famous rock garden. There, in the beautiful sunshine, was found a profusion of rare alpines. The pity was that Mr. Christie was not present, for his knowledge of alpine plants is intimate. This wonderful rock garden provides a capital opportunity for comparative botany. A large number of the names of the specimens could be fairly well guessed by those having a knowledge of our native congeners. The view, too, to be obtained from the rock garden is one of the finest in Scotland, the blue Moray Firth and the distant hills forming a picture not easily effaced from memory.

The final part of the day's programme was a kindly invitation from the Misses Christie to come down to the lawn and partake of tea. The Rev. George Birnie, B.D., Speymouth, expressed the great indebtedness of the Club to Mr. Christie for so kindly opening to them his beautiful gardens and grounds, and to the Misses Christie for their great kindness and hospitality—sentiments most warmly responded to. Altogether, it was a memorable outing; in Blackhills enchanted grounds.

Obituary.

Matthew Blacklock.—It is with much regret that we announce the death, on June 1, of Mr. Matthew Blacklock, who was for a great number of years gardener at Barwhillanty, Parton, Kirkcudbrightshire, in the service of the Yerburgh family. Mr. Blacklock, who was seventy-eight years of age, had retired from work, and at the time of his death was residing with his son, who is head gardener at Blair Drummond, Perthshire, to Sir A. K. Muir. Mr. Blacklock was an excellent all round gardener and had an exceptional knowledge of plants. He was very highly respected in Kirkcudbrightshire, and his services as a judge at shows were in great demand, his decisions being recognised as sound and his reputation for integrity was so high that these were accepted without demur. He was very highly esteemed in other circles as well as in those of horticulture.

Capt. W. S. Pinwill, V.M.H.—Capt. W. Stackhouse Pinwill, J.P., of Trehane, Cornwall, died on May 30, at the age of ninety-five. He served in the Indian Mutiny, in the 27th Foot, but being invalided home, did not see the full campaign. He was chiefly remarkable as an unequalled cultivator of rare hardy plants and of fruits. When he left the army, he took up gardening as a hobby at Trehane; he was fortunate in having as a neighbour the late Mr. J. D. Tyerman, of Tregony, a distinguished scientist and botanist, by whose scientific training he undoubtedly benefited. His observation, judgment and wisdom enabled him to form a collection of plants that was quite unique, not only for the good forms of ordinary plants and the host of rarities, but especially for their quite amazing cultivation. Those of us who were fortunate enough to visit Trehane between 1880 and the war were indeed favoured. We certainly can never see the like again. Capt. Pinwill was equally remarkable for his generosity. No plant was too rare or too small to be shared by a fellow gardener, and his name will always be coupled with that of Canon Ellacombe. He was a good naturalist and his natural aptitude and old world tastes always called to mind Gilbert White of Selborne. The R.H.S. awarded him the V.M.H. in 1914. *P. D. W.*

TRADE NOTES.

Messrs. Richard Melhuish, Limited, Tool and Machine Merchants, London, are opening a new branch at 125-7, Cannon Street, E.C., on June 14. The premises are large and all departments of the firm will be represented: they have been handsomely fitted with the latest type of showcases, etc., for the display of tools, and the premises when open, will be one of the most up-to-date of their kind in London.

Mr. W. Auton, of The Gardens, Pyrford Court, Woking, Surrey, has been appointed Horticultural Adviser to Adco Ltd. The business of this company is growing steadily and there is no doubt that it is doing much to solve the problem of the supply of organic manures. Mr. Auton's wide experience with the process, which has been practised with such good results at Pyrford Court, especially fits him for the appointment.

ANSWERS TO CORRESPONDENTS.

Gooseberries Diseased.—*W. D. S.* The plants are attacked by the disease known as Gooseberry Cluster Cups, caused by the fungus Puccinia Pringsheimiana. This complaint is not a very serious one, and it is only in certain seasons that it occurs with any severity, its spread being probably influenced by unfavourable weather conditions, such as we have had this season. One stage of the disease is found on the leaves of Sedges, for which reason Sedge plants in the neighbourhood of the Gooseberry plantation should be grubbed up and burned. It has been stated, however, that the Gooseberry stage can continue on the plant from season to season without the fungus passing a stage of its life's history on the Sedges. No remedial measures are known, but it is recommended to cut off the diseased leaves and fruits and burn them.

Grapes Diseased.—*Haslemere.* The specimens arrived in a dry, pressed conditions and it was impossible to determine the cause of the trouble.

Lily-of-the-Valley Unhealthy.—*J. M. G.* Eelworm was found to be present on the roots of the unhealthy plants. The pest may have been introduced with the new stock you purchased three years ago. It is apparently the same disease as that described as occurring on the continent (*Centralblatt für Bakteriologie*, VI, p. 631, 1900), and the browning of the flowers is probably due to it. All affected plants should be dug up and destroyed, and a fresh site selected for making a new bed.

Names of Plants.—*W. S.* Piptanthus nepalensis (lemon-yellow flower); Kerria japonica flore pleno (deep yellow flower). *J. F. A.* Asphodelus ramosus. *A. S. M.* Gentiana acaulis. *H. E.* 1, Ribes species, probably R. aureum; send in flower; 2, Heuchera tiarellioides; 3, Vinca minor var. variegata; 4, Escallonia rubra; 5, Veronica speciosa variety; 6, Cotoneaster microphylla; 7, Ornithogalum umbellatum; 8, Spiraea Van Houttei; 9, Viburnum Opulus var. sterile (?); 10, Dicentra Cucullaria.

Vines Injured by Paraffin.—*J. M. H.* There are two or three courses open to you in restoring your vines to health. If they were in good condition before the accident and the border in proper order there will be no difficulty in obtaining new and strong growths from the bases of the rods. The new leading shoots should be allowed to grow to six feet or eight feet before pinching out their points; lateral shoots below the leader should be encouraged to grow, pinching them at about two feet. This treatment will stimulate root action and also be an outlet for the superfluous sap. Vines treated in this manner may be allowed to develop four bunches of Grapes the next season and a full crop the following year. The rods of some of the vines may still break but if they were injured as well as the buds, such growths would be weak, and the former method would be the best to adopt. If you decide on the first treatment, tie the rods down as low as possible and do not remove them until the new shoots are well advanced in growth, or severe bleeding is sure to follow. The other course is to make a new border next autumn and re-plant it in the early spring, as it would not be wise to plant new vines in an old border. We do not think vines in pots four-years or five-years old could be purchased, as they are generally fruited in pots when two-years old, and afterwards thrown away. One-year old vines, or what are commonly termed cut backs, two-years old, are the best to plant.

Communications Received.—G. A. G.—A. B. C.—P. McG. R. L. B.—W. P. C.—M. S.—J. N.—W. C. M.—F. C. P —C. B. P.—Dora—C. C. S.—A. T. H.—A. B.—E. E. T.—R. S.—J. M. N.—N. A. C.—G. H. D.

MARKETS.

COVENT GARDEN, Tuesday, June 8, 1926.

Plants in Pots, etc.: Average Wholesale Prices

(All 48's except where otherwise stated).

	s. d. s. d.
Adiantum cuneatum per doz. ...	12 0-15 0
—elegans ...	12 0-15 0
Aralia Sieboldii	9 0-10 0
Araucarias, per doz.	30 0-42 0
Asparagus plumosus	12 0-18 0
—Sprengeri ...	12 0-18 0
Aspidistra, green	36 0-60 0
Asplenium, per doz.	12 0-18 0
—32's	24 0-30 0
—nidus	12 0-15 0
Cacti, per tray —12's, 15's ...	5 0—7 0
Cinerarias, 48's, per doz. ...	18 0-21 0
Crassulas, 48's, per doz. ...	24 0-30 0
Crotons, per doz.	30 0-45 0
Cyrtomium ...	10 0-25 0
Erica persoluta 48's, per doz.	24 0-30 0
—persoluta 60's per doz. ...	12 0-15 0
—coccinea, 48's per doz. ...	24 0-30 0
Fuchsias, 48's per doz. ...	12 0-18 0

	s. d. s. d
Heliotrope, 48's, per doz. ...	12 0-15 0
Hydrangeas, pink, 48's, per doz.	24 0-30 0
—white, 48's per doz.	24 0-27 0
—blue, 48's, per doz.	24 0-36 0
Ivy Geranium, 48's, per doz.	15 0-18 0
—60's per doz. ...	9 0-12 0
Marguerites, 48's per doz. ...	18 0-21 0
Nephrolepsis in variety ...	12 0-18 0
—32's	24 0-36 0
Palms, Kentia	30 0-48 0
—60's	15 0-18 0
Pteris, in variety	10 0-15 0
—large, 60's ...	5 0—6 0
—small	4 0—5 0
—72's, per tray of 15's	2 6—3 0
Rhodanthe, 48's, per doz. ...	12 0-15 0
Roses, Polyantha 48's, per. doz.	24 0-30 0
—Rambler, various sizes each	7 6 25 0
Spiraea, pink, 48's, per doz.	18 0-21 0
—white, 48's, per doz.	15 0-18 0
Stocks, white and coloured 48's per doz.	15 0-18 0

Cut Flowers, etc.: Average Wholesale Prices.

	s. d. s. d.
Adiantum decorum, doz. bun.	9 0-10 0
cuneatum, per doz. bun. ...	8 0-10 0
Arums (Richardias) per doz.	5 0—6 0
Asparagus plumosus, per bun., long trails, 6's	2 0—3 0
med. sprays	1 6—2 6
short	0 9—1 3
—Sprengeri, bun. long sprays...	1 6—2 0
med. „ ...	1 0—1 6
short „ ...	0 4—1 0
Carnations, per doz. blooms .	2 6—4 0
Cornflower, pink, per doz. bun:	4 0—5 0
—blue, per doz. bun.	4 0—5 0
Croton leaves per doz. ...	1 9—2 6
Fern, French, per doz. bun.	10 0-12 0
Forget-me-not, per doz. bun.	6 0—8 0
Gardenias, 12's, 18's, per box	4 0—5 0
Gladiolus, The Bride, per doz. bun.	15 0-18 0
—primulinus 6's, per doz. bun....	18 0-24 0
—Blushing Bride, per doz. bun...	12 0-18 0
—Peach Blossom, per doz. bun.	18 0-21 0
Gypsophila ...	9 0-10 0
Heather, white, per doz. bun.	10 0-12 0
pink, per doz. bun.	9 0-12 0
Iceland Poppies, per doz. bun.	3 0—4 0
Iris, blue, per doz. bun. ...	12 0-18 0
—mauve, per doz. bun. ...	15 0-18 0
—white, per doz. bun.	18 0-24 0
—yellow	24 0-30 0
Lapageria, white, per doz. blooms	3 6—4 0
Lilium longiflorum long, per doz.	3 0—3 6

	s. d. s. d.
Lilium speciosum rubrum, long, per doz. blooms ...	3 6—4 0
—short doz. blooms ...	3 6—4 0
Lily-of-the-Valley, per doz. bun.	24 0-36 0
Narcissus double. white, per doz. bun.	8 0—9 0
Nigella, blue, per doz. bun. ...	9 0-10 0
Orchids, per doz.	
—Cattleyas ...	24 0-30 0
—Cypripediums	5 0—7 0
Paeonies, white, per doz. bun. 6's...	15 0-18 0
—pink, per doz. bun. 6's	12 0-15 0
—red, per doz. bun. 6's	12 0-15 0
Pinks, white per doz. bun. ...	4 0—6 0
Pyrethrum, double pink, per doz. bun.	4 0—6 0
—single pink, per doz. bun.	3 0—4 0
—single red, per doz. bun. ...	3 0—4 0
—double white, per doz. bun.	3 0—5 0
Roses, per doz. blooms—	
—Madame Abel Chatenay ...	2 0—2 6
—Molly Sharman Crawford	3 6—4 6
—Richmond ...	2 6—3 6
—Columbia ...	3 0—3 6
—Golden Ophelia	3 0—4 0
—Sunburst ...	2 6—3 0
—Mrs. Aaron Ward	2 6—3 0
—Madame Butterfly	3 0—4 0
Smilax, per doz. trails	5 0—6 0
Statice sinuata per doz. bun.	3 0—4 0
—Suworowii ...	18 0-24 0
Stephanotis, per 72 pips... ...	3 0—3 6
Stock, double white, per doz. bun.	12 0-18 0
Sweet Peas, per doz. bun. ...	9 0-18 0
Violas	3 0—4 0

REMARKS.—There was a good demand for all cut blooms during the whole of last week. The supplies of Carnations became suddenly short, and on Saturday morning all supplies were cleared early; prices for these blooms advanced from 2/- to 4/- per dozen during the past week. Lilium longiflorum also advanced in price owing to a short supply. A good supply of Roses was maintained, but the best blooms remained firm in price. The unfavourable weather has checked the development of outdoor blooms, such as Cornflowers, Delphiniums, Gypsophila, white Pinks and Pyrethrums. As in the previous week, Irises were probably the heaviest supplies, owing to large consignments from the Channel Islands, but these did not affect the prices for those from home-growers, which were preferred to the cheaper grades. Small consignments of Double White Narcissus and N. poeticus have been received from Scotland during the past week, but they are not recommended, only for the London trade. Better conditions appeared to prevail this morning, and prices for most subjects may become lower again before the end of the present week. Pink Erigeron is the newest subject in this department, and there are some large flowered Daisies from Cornwall. There appear to be an ample supply of Asparagus Fern, Smilax, Maidenhair Fern and hardy foliage.

Fruit: Average Wholesale Prices.

	s. d. s. d.
Apples, West Australian—	
—Cleo	13 0 16 0
—Jonathan ...	12 0-13 0
Apples, New Zealand—	
—Sturmer ...	12 0-15 0
—Delicious ...	12 0-13 0
—Cleo	14 0-16 0
—Cox's	16 0- 5 0
—Dunn's' ...	13 0-15 0
Apples, Tasmanian—	
—Cox's Orange Pippin... ...	12 0-14 0
—Ribston ...	9 0-11 0
—Cleo	12 0-13 0
—Dunn's Seedling	12 0-14 0
—others	8 0-10 0
Bananas	14 0-22 6
Figs, forced, per doz.	4 0—12 0
French Black Currants, per boat	10 0-12 0
Gooseberries—	
—Kent, halves	4 0—6 6
Grape Fruit ...	35 0-50 0
Grapes, English Black Hamburgh	2 6—6 0

	s. d. s. d.
Grapes, Australian—	
—O'Haney ...	16 0-18 0
Lemons, Messina, per box ...	13 0-15 0
—Naples, box	18 0-25 0
Melons—	
—Forced Guernsey specials ...	— 5 0
—others	2 0—4 0
Oranges—	
—Denia	16 0-30 0
—Murcia... ...	16 0-30 0
Peaches, Belgian, per doz. ...	4 0-10 0
Peaches, English, per doz. ...	6 0-18 0
Pear, Australasian—	
—Beurré Bosc ...	6 0—8 0
—Glou Morceau	5 0—7 0
—Winter Nelis...	6 0-10 0
Box Cherries ...	1 3—2 6
Crates French Cherries ...	4 0—6 0
—halves ...	8 0-12 0
—Boxes... ...	1 3—2 0
Pines	2 0—4 0
Spanish Apricots per crate ...	6 0-12 0
Strawberries, per lb	4 0-10 0

Vegetables: Average Wholesale Prices.

	s. d. s. d.
Asparagus, English—	
—Evesham—	
Special ...	5 0-10 0
Best	2 6—4 0
—Devon ...	5 0-12 0
—Cambridge ...	1 6—2 0
Beans—	
—Madeira, per basket ...	3 0—4 0
Box	4 6—5 0
—Guernsey and Worthing forced	1 6—2 0
Beets, per cwt.	7 6—9 0
Cabbage, per doz.	1 9—2 3
Carrots, new, per doz. bundles	3 0—6 0
Cauliflowers, per doz.	5 0—6 0
Cucumbers, per doz.	2 6—4 0
—Flats	8 0-12 0
Horseradish, per bundle ...	1 6—2 0
Lettuce, round, per doz. ...	1 6—2 6
Marrows, forced per doz. ...	12 0-21 0
Mint	2 0—3 0
Mushrooms,	
—cups ...	2 0—3 0
—Broilers ...	1 0—2 0
Onions—	
—Egyptian ...	— 12 0
Parsnips, per cwt.	5 0—6 0

	s. d. s. d.
Peas, forced ...	2 6—3 0
—French, per bag	3 0—8 0
Potatos—	
—King Edward per cwt. ...	6 0—7 0
—others	4 0—5 0
New Potatos—	
—St. Malo ...	11 0-12 0
—Azores, per case	5 0—8 0
—Canary Island	8 0-12 0
—Guernsey, per cwt.	14 0-16 0
—Jersey, per cwt.	14 0-16 0
Rhubarb, forced, per doz. bundles	2 0—2 6
—Outdoor, per doz.	9 0-10 0
Spinach, per bushel	3 0—4 0
Spring Greens, per bag ...	2 0—3 0
Tomatos, Canary Islands Best.	18 0-22 6
—English, pink,	7 6-10 0
—pink and white	7 6-10 0
—blue	6 0—7 0
—white	6 0—7 0
—Guernsey ...	7 0—8 0
Turnips, per cwt.	5 0—7 0
—new, per doz. bunches ...	6 0—8 0
Turnip Tops, per bag ...	3 6—4 0

REMARKS.—Business has been quite satisfactory during the past week. The demands of the London Season for choice fruits and vegetables are about normal, and prices for such produce are good. The trade in Australian Apples is steady, and fruits free from spot are selling well. Strawberries, Peaches, Melons and Figs are in demand, although fine weather is more favourable to the sale of these than otherwise. Peas, Beans and Asparagus are selling well, the first two vegetables having enjoyed a long period of high prices. Trade in new Potatos is fairly good, although their prices are not particularly good from the producers' point of view. Tomatos are increasing in quantity almost daily and their prices are lower. The Cucumber trade is improving, and will continue to do so with good weather. Cherries from France and Apricots from Spain are more plentiful. English Gooseberries are a fair trade and sell well, considering the competition of Dutch-grown Gooseberries. Mushrooms are more abundant, but their prices remain fairly steady. Cauliflowers are scarce and dear. Salads are hardly as good a trade as might be expected. Green vegetables are in fair demand, but the fairly heavy supplies of Peas from France are clearing at good prices.

GLASGOW.

DELIVERIES of cut flowers were again irregular, and owing to the delay in transit by rail, a motor service by road was inaugurated. During the past week the market was overstocked with Irises from Guernsey, and while considerable quantities arrived in good condition the contents of many boxes were in a heated state. Blooms included in the latter category were disposed of at 1/- to 2/- per box; yellow specimens made 1d. to 3d. per dozen, Imperator (blue), 3d. to 5d.; while good quality blooms were sold as follows:—blue, 9d. to 1/-; special, 1/2; white and yellow, 1/- to 1/3. Pyrethrums were also badly affected and were difficult to sell. As showing the disparity in prices, buyers paid from 1/- per dozen to 1/- per box; good blooms were worth 1d. to 2d., and specials, 3d. to 4d.; while locally-grown flowers commanded 5d. to 8d. A few Clara Butt Tulips ranged from 4d. to 8d. per dozen, and double white Narcissi, 3/- to 5/- per dozen bunches. Sweet Peas sold for 8d. to 1/-, specials, 1/- to 1/9; Peach Blossom Gladioli realised 1/- to 1/3; Poppies, 1/-; Stocks, 8d. to 1/3; Carnations, 3/- to 5/-; Roses, 4/- to 6/-; Paeonies, 10d. to 1/-; Lilium longiflorum (Harrissii), 3/6 to 5/-; Guernsey Richardias, 2/- to 3/-; Lily-of-the-Valley (outdoors), 2d. to 4d. per bunch, and Asparagus Fern, 9d. to 1/6.

Pot plants were little changed in value; the prices for Hydrangeas ranging from 1/9 to 3/6 each; Geraniums, 6/- to 8/- per dozen; Spiraeas, 12/- to 15/-; Marguerites, 12/-; and Coltness Gem Dahlias, 4/- to 5/-.

There was an absence of activity or feature in the fruit market. English Gooseberries realised 4d. to 4½d. per lb. French Cherries, 10/- to 14/- per crate; Apricots, 6/- and 8/-; Cheddar Strawberries declined to 2/- and 2/6 per lb. Black Hamburgh Grapes, English, 2/9 to 3/6; Belgian, 2/- to 2/9; Jamaica Bananas, 11/-; Canary, 15/- to 26/-. Palermo Lemons, 12/6 to 17/-; Porto Rico Grape Fruit, 40/- to 46/-; South African Pears, 6/- to 7/6 for Winter Nelis and Glou Morceau; and 8/- to 10/6 for Doyenné du Comice. Prices for New Zealand Apples were steady at 13/- to 17/- per case. Australian Apples realised 13/6 to 16/-; Murcia Oranges, 16/- to 40/-, according to counts, and Valencia Oranges, 14/- to 23/-.

A good trade was reported in new vegetables, business in salads being stimulated by the warmer weather. Tomatos further declined in value; Scotch-grown were worth from 1/2 to 1/6 per lb.; English from 11/6 to 12/6 per box; and Guernsey produce, 11/6 to 12/- per basket. Lettuces were more plentiful and cheaper, Scotch making 2/- to 2/6; Loan's special, 4/6; Dutch, 4/- to 5/6; and English, 2/- to 2/3. Other products made the following prices:—English Dwarf Beans, 2/- to 2/3 per lb.; Mushrooms, 2/3 to 2/6; Salads, 2/6; Dutch Cauliflowers, 4/6 to 6/-; French Carrots and Turnips, 1/- per bunch; Dutch Carrots, 4d. to 7d.; Spinach, 4/- per stone; and Mint, 3/- to 4/- per dozen bunches. English Cucumbers were worth 5/- to 6/- per dozen; Scotch Cucumbers 4/- to 6/-; and Dutch Cucumbers, 3/6 to 4/6.

THE WEATHER FOR MAY.

May had slightly under the average amount of sunshine, the total being 161·6 hours, a daily average of 5¼ hours, and a percentage of 32. The first day was the brightest with 10·9 hours. Rain fell on 17 days yielding 56·64 millimetres (2·23 inches), which is about normal for the district. The greatest fall for one day was 9·65 millimetres, ·38 of an inch, on the 26th. From the 6th to the 14th there was a sequence of hail showers usually near the middle of the day, those on the 13th and 14th being very severe. Thunder and lightning also occurred on the 14th. Temperature, during the first three weeks was low, but an improvement took place towards the end of the month. The mean maximum and minimum were 55.6° and 41.0° respectively. This gives an average mean temperature of 48·3°, which is a little under the normal. The highest temperature of 67° in the shade was reached on the 27th and 28th, while the lowest of 33° was registered on the 8th. During the month the soil temperature at one foot deep rose from 47° to 55°. The grass minimum showed seven nights of ground frost; the lowest reading of 25° being noted on the morning of the 8th, while the 14th and 15th were only 1° higher (viz. 26°). Barometric pressure was fairly steady, and gave a mean of 1012·28 millibars (29·89 inches). Highest 1,023·0 mbs. on the 23rd, and lowest 990·0 mbs. on the 11th. Winds were variable, but on no occasion were they of great force. Cloudy conditions prevailed on most days, but visibility was good generally. *William McClelland, Director of Studies, St. Andrews Provincial Committee at the Training College Gardens, Mafield, Dundee.*

SCHEDULES RECEIVED.

WHITLEY, MONKSEATON AND CULLERCOATS HORTICULTURAL SOCIETY.—Exhibition to be held on Monday, August 2, in the Marquee, The Links, Whitley Bay. Secretary, Mr. J. Haley, 22, Countess Avenue, Whitley Bay.

NEWPORT AND DISTRICT HORTICULTURAL SOCIETY.—Rose show to be held at Stelvio, Bassaleg Road, Newport, on Thursday, July 1.—Secretary, Mr. H. G. Brooks, 74, Halstead Street, Newport.

CATALOGUES RECEIVED.

D. G. PURDIE, 6, Waterloo Street, Glasgow.—Summer bedding plants, garden sundries, etc.

J. E. SLEIGHTHOLME, 2-6, Ingham Street, South Shields.—Garden furniture. (Wholesale).

HURST AND SON, 152, Houndsditch, E.1.—Bulbs, (Wholesale).

Australia.

R. W. HODGINS AND SON, Victoria Nursery, Essendon Victoria.—Plants.

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SUPPLEMENT PLATE.
Cattleya Queen Mary.

AVERAGE MEAN TEMPERATURE for the ensuing week deduced from observations during the last fifty years at Greenwich, 61.0

ACTUAL TEMPERATURE—
The Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, June 16, 10 a.m. Bar. 30°. Temp. 62°. Weather, Fine.

British Forestry.

IT is a universally admitted fact that the industrial development of a country may be measured roughly by its consumption of timber. And this is no less true of the "steel" age than of preceding ages when wood served for many purposes which are now fulfilled by the metals. It is true that Mr. Henry Ford, in his most interesting biography, professes but a poor opinion of the properties of wood as compared with those of metals. Yet the fact remains that the new uses to which wood is being put demonstrate it to be the most versatile of all natural products. Even the steel house consumes in its construction more wood than does a brick and timber one. The newspaper looks to the pulp factory for its paper and the latest of all inventions, artificial silk, relies also on forest products for a large part of its substance. Hence, as Prof. Borthwick points out in his inaugural address delivered before the University of Aberdeen* it behoves every country to take steps both to conserve its existing forests and to extend as far as possible its forest areas. Prof. Borthwick illustrates in a striking way the magnitude of the demand made by modern industry on the growing forests by reference to Canadian pulp manufacturers. According to him, to feed the pulp-making machinery each day the trees on two-and-a-half square miles of land must be destroyed. Judge then what must be the rate at which the forests of the world are being felled in order to satisfy the enormous and ever increasing demands of modern industry! Our own needs are indicated by the fact that the national expenditure on imported timber amounts to no less than sixty-six million pounds sterling. It was, of course, the war which brought home to people of this country the need for developing the home production of timber, and not the least interesting part of Prof. Borthwick's stimulating address is his account of the success which has attended the efforts of the Forestry Commission to increase the area under forests and to improve the yield of forest products. Recognising that much remains still to be learned with respect to the influence of place of origin of seed on timber production, the Commission has not only established tree nurseries and organised research into the physiology of tree-growth, but has arranged with the Forestry Branch of the Canadian Department of the Interior for the establishment at New Westminster, British Columbia, of a seed-extracting station wherein seeds of Douglas Fir and Sitka Spruce collected in specially selected districts are extracted for despatch to this country. So the seed-history of every tree of these species planted in this country may be recorded. The planting programme of the Commission is in course of fulfilment. In spite of the cold fit of economy evoked by the Geddes Act the areas planted each year by the Commission since 1919 have, on the average, shown an increase—1,417 acres in 1919; over 6,000 acres in 1920, and over 10,000 acres in 1921. Areas of upwards of 10,000 acres were also planted in the two following years and in 1924 nearly 15,000 acres, whilst in 1925 upwards of 18,000 acres were planted. Hence the total area already planted amounts to more than 72,000 acres and it is confidently anticipated that the planting of the full instalment of 150,000 acres planned for the ten-year period 1919-1929 will be achieved. If so the Commission will deserve the thanks of the community and will have given earnest that the full programme of one-and-three-quarter-million acres of state forest will ultimately be called into existence. When that happens "England's green and pleasant land" will be yet more deserving of the epithet than it was when Blake penned his immortal poem. To the 72,000 acres planted by the Commission, which give employment to 15,000 men for twenty weeks each season, must be added 50,000 acres planted by local authorities and by private owners. Yet more satisfactory is Prof. Borthwick's assurance that from recent investigation of the rate of growth of Conifers in Britain there is ground for believing that we may hope for a volume production "equal to or better and in some cases much better than" in any other country where the same species are grown.

Sturry Court.—It will be within the recollection of our readers that we referred in these columns a few weeks ago to a notable benefaction which it was proposed to confer on the Royal Horticultural Society. As has since been announced, the proposed benefaction was due to the generosity and imaginative foresight of Lady Milner. Recognising that the scope of a Society such as the Royal Horticultural is, or should be, ever widening, and being desirous of making a permanent memorial of an unique and beneficent kind to the late Viscount Milner, she offered to the Society the famous house, Sturry Court, Lord Milner's Kentish home, together with the garden of six acres which had been laid out under Lord Milner's direction. A more apposite memorial to a great Englishman and a great lover of horticulture it would be impossible to imagine. House and grounds would have formed an ideal training centre for gardeners who had been through the elementary part of their work at Wisley. Acceptance of the trust would have been undoubtedly to the advantage of horticulture. It is therefore surprising to learn that the Council has declined this most generous gift, and still more surprising to read from the letter in which they convey their decision to Lady Milner that their legal advisors are doubtful whether the acceptance of the gift is consistent with the objects for which the Society is founded. If such a decision applies to Sturry, how can it fail to apply also to Wisley, and how perturbed the Council would be in learning, as apparently it has learned, that it has no right to accept a gift calculated to advance horticulture! It is possible, of course, that there are some terms attaching to the proposed gift of Sturry which differentiate that benefaction from Mr. Hanbury's gift of Wisley. If so, the Council will no doubt notify the Fellows of the difference. For our part, we fail to see one. We regret the decision and we venture to believe that our regret will be shared very widely among Fellows of the Society. We hope, therefore, that Lady Milner will not finally withdraw her offer, but in spite of the decision of the Council, leave it open until the next occasion, as, for example, at the next General Meeting, when the Fellows may have an opportunity of expressing their views on the subject. We hope, also, that in the meantime, and for the edification of Fellows who lack legal training, the Council will publish the terms of their reference to their legal advisors and the answers thereto.

Gift to Kew Gardens.—The late Mr. John Arthur Kenrick, of Barrow Court, Edgbaston, Birmingham, left his collection of Hippeastrums to the Royal Botanic Gardens, Kew, to be incorporated in the national collection of living plants in that garden. Mr. Kenrick was a well-known exhibitor of stove and greenhouse plants.

Meconopsis betonicaefolia v. M. Baileyi.—We understand that as some difference of opinion arose concerning the correctness of the name—M. Baileyi—given to a plant exhibited at the Royal Horticultural Society's meeting on Tuesday, April 7, several authorities were consulted, with the result that M. betonicaefolia was found to be the correct name of the species. In view of the interest now taken in Meconopsis, we publish this correction, especially as our columns are so frequently consulted in regard to new plants and flowers.

R.H.S. Gardens Club.—The annual meeting of the R.H.S. Gardens Club will be held at Wisley, on Saturday, June 26, at 5 p.m., in the Lecture Room, when the report will be presented and officers elected for the ensuing year. It is proposed to arrange for lunch at the Hut Hotel at 1 p.m., at 3s. per head. The afternoon will be devoted to an inspection of the Wisley gardens. Mr. F. J. Chittenden has very kindly invited the members of the Club to tea in the Laboratory at 4 p.m. Wisley may now be reached very conveniently by L.G.O.C. bus No. 115 from Kingston to Guildford. The times of departure are thirty minutes past every hour from Kingston Railway Station, and forty-three minutes past every hour from North Street, Guildford. There is a service of electric trains from Waterloo to Horsley and Effingham, and the Rural Bus runs from Horsley

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*"The University and the Practice of Forestry." Inaugural Lecture by Prof. Albert W. Borthwick, D.Sc., The University of Aberdeen, May 7, 1926.

Station to Ripley at 2.46 and 3.46. (alight at Stratford Bridge for Wisley). It is hoped that every member of the Club will make a special effort to attend on this occasion, and notify the Hon. Secretary, Mr. W. D. Cartwright, not later than Monday, June 21 of their intention to be present at lunch or tea, or both, so that adequate arrangements may be made.

Scotch Potato Sales.—The first of the annual series of early Potato sales in Ayrshire took place on Monday, June 7, at farms situated near the little fishing village of Maidens, and were continued during the week in the Girvan district. This season the condition of the crops is somewhat irregular. While the majority of the fields gave promise of satisfactory results others had not recovered from the effects of the severe frosts in May. In many cases the tubers will be late in maturing, and, taken as a whole, it is not expected that the average weight of recent years will be realised. There was a good attendance of merchants but prices were disappointing on the opening day when they fluctuated between £27 and £55 per acre, and four lots were unsold. Later in the week bidding was more spirited and buyers conceded higher prices for lots growing on the shore farms, where the crops were found to be in excellent condition. The highest individual average price attained was £47 10s. per acre, but it is expected that the general average of this year's sales will work out about £40 per acre. The variety grown is Epicure, which is still considered the best all-round Potato for market purposes. Digging started on June 8, about a week earlier than last year, but marketing will not be general before the third and fourth week of June.

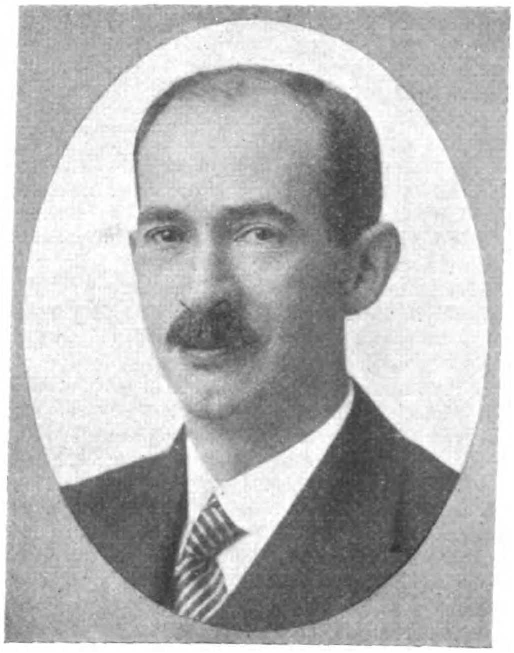
Cherry Fruit Fly and French Cherries.—The Minister of Agriculture stated in the House of Commons on the 3rd instant that officers of his Department were examining samples taken from consignments of imported Cherries, and that in the event of the discovery of any serious infestation with the Cherry fruit fly (a pest which has not established itself in this country) he proposed to issue an order prohibiting the entry of Cherries from the country in question, excepting such consignments as could be furnished with an official certificate that the fruit was grown in a district where the Cherry fruit fly is not known to exist. Examination of samples of French Cherries on the 10th inst., revealed the presence of some heavily infested consignments, and the Minister, in order to prevent the establishment of the pest in English Cherry Orchards, made an Order, which took effect on the 16th instant, prohibiting the entry of any Cherries shipped from a French port unless accompanied by an official certificate that the fruit was grown in a department where the Cherry fruit fly is not known to exist. Cherries not grown in France but shipped from a French port must be accompanied by a certificate of origin.

Peppermint as a Cure for Colds.—In a lecture delivered by Miss Eleanor Sinclair Rohde to the members of the York Women's Luncheon Club, Miss Rohde stated that a tablespoonful of dried Peppermint leaves in half-a-pint of water was an excellent remedy for a bad cold.

Empire Settlers.—In a written reply in the House of Commons on Monday last, the Secretary of State for the Dominions stated that up to the end of last year, 49,594 men were assisted to migrate under the Empire Settlement Act. Of that number 35,128 were single men, 11,962 were married with families, and 2,504 were married men without families.

Journal of the Manchester Parks.—Mr. L. E. Morgan, Hon. Secretary of the Manchester Parks and Cemeteries Staff Society, states that the paragraph on p. 419 referring to the *Journal* of the Society has resulted in several enquiries for copies. He asks us to state that there are a few *Journals* remaining, and those interested may obtain a copy at a cost of 1s. 2d. post free. Applications should be addressed to Mr. L. E. Morgan, Parks and Cemeteries Staff Society, Guildhall Chambers, Lloyd Street, Manchester.

Mr. F. A. Secrett.—Among the younger generation of market gardeners who cultivate ground on the immediate outskirts of Greater London, none is more successful than Mr. F. A. Secrett, whose principal centre of operations is at Marsh Farm, Twickenham, a market garden famous for many years while in the occupation of the veteran Mr. William Poupart. Mr. Secrett was born at Ealing, Middlesex, and was apprenticed to Mr. A. J. Robbins, also a very successful market gardener, at New Farm, Ealing. In 1908, he took over about twenty acres of land at Kew which had already been subject to intensive cultivation. He soon realised, however, that to become eminently successful it was necessary to specialise. He therefore specialised in the cultivation of Cabbage Lettuces with great success. In 1915 he took over Marsh Farm, Twickenham. In 1921, he spent the greater part of the year in Australia and New Zealand on the advice of his doctor, who considered that intensive application to business was likely to cause a break-down of health. On this visit, however, he combined business with pleasure and made a thorough study of the methods of fruit culture obtaining in Australia and New Zealand. Mr. Secrett was so impressed by the methods adopted in the Antipodes that on his return home he felt very much like grubbing up every fruit tree on his farms. In 1923 he added to his responsibilities by acquiring Bell Farm, Walton-on-Thames. On his occupation of Marsh Farm, Twickenham, he acquired about five acres of commercial varieties of Daffodils, mostly Emperor and Empress. From that moment his interest in bulbs commenced and has developed amazingly in the following years. He soon realised that the time was rapidly approaching when the ordinary commercial varieties of Daffodils would be superseded by bolder and superior sorts, consequently in 1922 he began to interest himself in hybrid Daffodils and this interest brought him in close contact with the Rev. G. H. Engleheart, whom he regards as the prince of Daffodil raisers. He paid several visits to Dinton, and in more recent years he sought the valuable advice of the late Mr. J. K. Ramsbottom with regard to the management of Daffodils and the treatment of bulbs with hot water for the cure of eelworm. Unfortunately, many of the Engleheart Daffodils suffered from eelworm, but Mr. Secrett purchased almost the whole of the stocks at Dinton, removed them to Twickenham, where they were sterilised and nursed back to health, and are now once again in a sound and healthy condition, promising in due course to supply new and improved varieties for commercial purposes. With regard to all matters concerning Daffodils, Mr. Secrett readily acknowledges the great help and advice he has received from his friend and senior, Mr. W. Poupart, who still lives at Marsh Farm, and has placed his large store of knowledge at Mr. Secrett's disposal. Mr. Secrett has about 250 acres of land under cultivation for the production of fruits, flowers and vegetables for Covent Garden, and although the Daffodil side of his business is likely to prove commercially successful, he regards this in the light of a hobby. Incidentally, we may observe that Mr. Secrett has an excellent taste in pictures and a special knowledge of etchings and engravings.



MR. F. A. SECRETT.

Trains for Eastern Counties Fruit.—The County Secretary to the Holland (Lincolnshire) Farmers' Union makes an important announcement to fruit growers, whom, he states, will naturally be anxious to know the position as to getting their produce to market if the coal strike continues. "We have been in negotiation," he writes, "with the headquarters of the Midland and G.N. Joint Railway, and are very glad to have received an assurance that they will convey the fruit." Although it will mean a heavy call on the reserve of coal, there will be, in the main, the same service for fruit as last year on the M. and G.N. railways. The different stations have already received their instructions. Growers are asked to assist the Railway Company by giving twenty-four hours' notice of heavy loadings, in order that the necessary arrangements may be made.

British Mycological Society.—The annual phytopathological meeting will take place at Harpenden on Saturday, July 3. The train leaves St. Pancras at 8.55 a.m., arriving at Harpenden at 10.10 a.m. The party will visit first the Pathological Laboratory of the Ministry of Agriculture, Milton Road, where exhibits will be shown by Dr. Pethybridge and Mr. Fryer in the Mycological and Entomological sections respectively. In the afternoon Dr. Brierley will conduct members over the Mycological Department of Rothamsted Experimental Station. Those who propose to attend should communicate with Miss E. M. Wakefield, Secretary, Herbarium, Royal Botanic Gardens, Kew.

Autographs of Plants.—On the occasion of the Royal Horticultural Society's fortnightly show on June 29, Sir Jagadis Chandra Bose, C.I.E., C.S.I., F.R.S., the distinguished Indian scientist, will lecture at 3 p.m. on "The Autographs of Plants." The Chair will be taken by Professor Sir Frederick Keeble, D.Sc., F.R.S.

A Giant Cauliflower.—Mr. P. W. Simpson, of High Street, Chatteris, Cambs., has grown an enormous Cauliflower—fifty-six inches in circumference, eighteen inches in diameter, and weighing eighteen pounds.

Late Blight of Potatos—The first specimens of Potato foliage attacked by "blight" this season have been received at the Ministry of Agriculture's Plant Pest Laboratory at Harpenden, and the occasion is taken to suggest to Potato growers that they should take in hand immediately the spraying of their crops against this very destructive disease. To be effective, spraying should be done before the blight appears, and should be repeated when weather conditions make it necessary. If heavy rains wash the spray from the leaves of the plant, the operation should be repeated at once. The second spraying is the more important because in wet seasons the fungus finds conditions favourable for its rapid multiplication, and it is that which makes a second and sometimes a third and fourth spraying imperative. As a general rule the Potato crops should be sprayed at least twice. Both Bordeaux and Burgundy mixtures are efficient for the purpose, but where good lime is not readily obtainable, Burgundy mixture should be used.

The Jones-Bateman Cup for Research Work in Fruit-growing.—In 1920, Miss L. Jones-Bateman of Cae Glass, Abergele, presented to the Royal Horticultural Society a valuable silver-gilt replica of the Warwick Vase (Fig. 219), to be used for the encouragement of fruit production. The Council has, accordingly, decided to offer it triennially for researches in the growing of hardy fruits, Figs, Grapes and Peaches in the open or under glass, and it is available for award in 1926. Candidates should submit accounts of their work by October 31. The work dealt with must have been carried out by the candidate in the United Kingdom, mainly during the past five years. The cup will be held for three years by the successful candidate who must give a bond for its safe return, and when the cup is relinquished the holder will receive a commemorative Gold Medal. The holder will be eligible to compete on the next or any succeeding occasion. The assessors will be three, two appointed by the Royal Horticultural Society and one by the National Farmers' Union, and they will report to the Council of the Royal Horticultural Society upon the originality and comparative potential value to the fruit-growing industry of the work of the candidates. The Council of the Royal Horticultural Society will award or withhold the Cup at its discretion.

Appointments for the Ensuing Week.—Tuesday, June 22: Royal Horticultural Society's Amateur show. Wednesday, June 23: Southampton Royal Horticultural Society's Rose show (two days); Croydon Horticultural Society's show. Thursday, June 24: Paisley Florists' Society's meeting. Friday, June 25: Association of Economic Biologists meeting. Saturday, June 26: Wallington and District Horticultural Society's show.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Orchid Shows.*—The two last shows at Chiswick and the Regent's Park confirm me in my opinion that it would be expedient that there should be some encouragement for the exhibition of smaller specimens of the rarer kinds of Orchidaceous plants, and if not for all the rarer kinds, but for the encouragement of beginners in this branch of cultivation. Now I am not in the least inclined to deny the value of offering prizes for finely grown plants and large specimens, I fully believe that but for this great encouragement offered, both in the prizes and in the opportunity of our great gardeners gaining fame (for I will not believe that such cultivators as Mr. Mylam and Mr. Williams are solely stimulated by the value of the medal) have led to the wonderful specimens of good culture that every year's show produces. But as there is a feeling that only large plants covered with masses of flowers are fit to show, the result is, that the competition mainly lies between the few possessors of very large specimens, and the very same plants are produced year after year, though they are grown larger than the year before. Now I do not advocate the abandoning the existing prizes: I cannot but think, if there were also prizes given for smaller specimens of the rarer kinds, we should have a much greater variety of these interesting plants shown, and an encouragement afforded to collectors who are only just entering the field. *Dodman, Gardeners' Chronicle, June* 21, 1851.

Publications Received.—*The Law Relating to Injuries to Workmen*, by F. G. Neave; *The Law of Wills for Testators, or How to make a Will*, by G. F. Emery. Effingham Wilson, 16, Copthall Avenue, E.C.2, price 2/- each, net.—*Key to the Families of the Dicotyledons* taken from *The Families of Flowering Plants*, vol. 1, Dicotyledons by J. Hutchinson. Macmillan and Co., Ltd., St. Martin's Street, London, price 2/- net.—*Root Development of Field Crops*, by John E. Weaver. McGraw-Hill Publishing Co., Ltd., 6 and 8, Bouverie Street, E.C.4, price 15/- net.—*The Small Fruits of New York*, by U. P. Hedrick. New York Agricultural Experiment Station, Geneva, New York. Pageant Play: *The Antiquities of Selbourne*, by Mary Kelly, Hon. Secretary of the Village Drama Society. Dulau and Co., Ltd., 34, Margaret Street, Oxford Street, W.1., price 1/- net.

HARDY FLOWER BORDER.

BAPTISIAS.

It is hard to set a limit to the improvements which may be effected in flowers when we consider the past results of hybridisers and seedling raisers, but it is questionable whether the Lupin-like plants known as Baptisias can ever produce flowers which will approach, let alone equal the modern charming varieties of Lupins. I do not think, from the habit of the flowers, that they will ever produce such glorious spikes as those of the Lupin, but we may recollect that in the Baptisias we have not only the blue B. australis, the best known of the race, but we have also the white B. alba, and the yellow B. tinctoria. No doubt these offer material for improvements, but at present the Baptisias will only hold a third- or fourth-rate place in the garden.

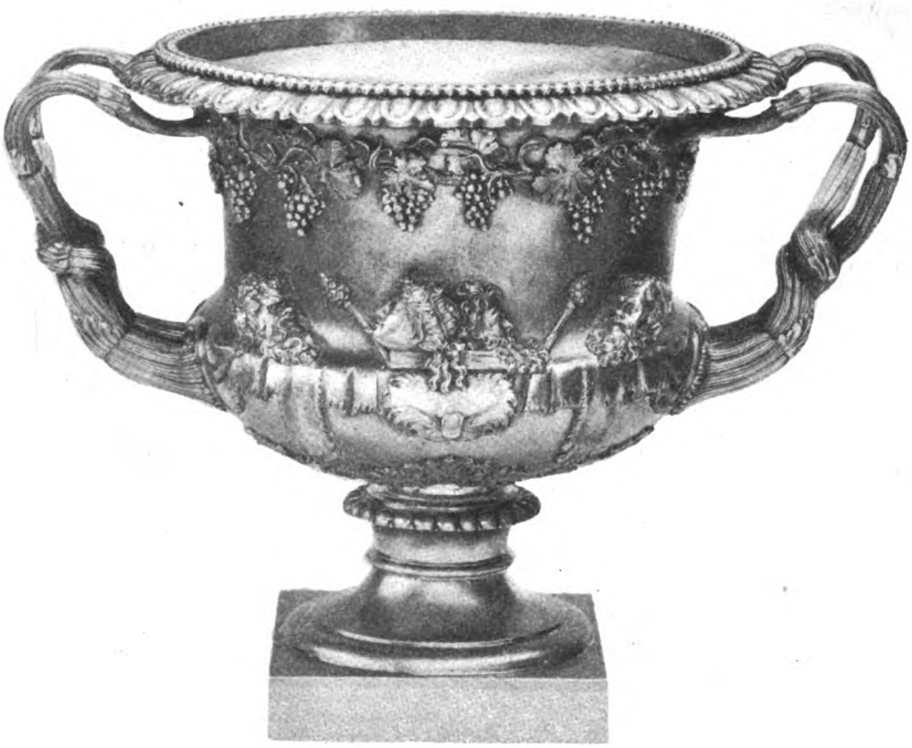


FIG. 219.—THE JONES-BATEMAN CUP FOR RESEARCH IN FRUIT-GROWING.

Yet there are many who like such flowers, and a brief note on the best in commerce may be of interest.

First in alphabetical order comes B. alba, the white False Indigo, which is only about two feet high and has spikes of Pea-shaped, white flowers. It likes a dry soil and a sunny place. B. australis is recognised as the best species in cultivation. It is taller than B. alba or even than B. exaltata, although the specific name of the last would lead one to expect that it would be the taller. B. australis grows four feet or five feet high and produces numerous blue flowers. It prefers a rich soil and is not so good in the drier earth which suits B. alba.

The only other Baptisia one comes across in catalogues or gardens is B. exaltata, the Tall False Indigo. It is about three or four feet high and has blue flowers. Like B. alba, this species does best in a dry soil. The yellow Baptisia mentioned above is B. tinctoria, but it does not appear to be offered in British catalogues.

These Baptisias are all hardy and may be considered by those planting borders or wild gardens as offering plants not generally met with and of moderate beauty. They may be raised from seeds or increased by division of large plants. *S. Arnott.*

APHYLLANTHES MONSPELIENSIS.

A WELL-ESTABLISHED plant of this curious Liliaceous species is now (end of May) very attractive in a mixed border. The position being rather hot and sunny, I gave it the light shade of a Buddleia alternifolia, and here, in deep, free soil, it has done admirably and proved hardy and permanent no matter what the winters may be.

A. monspeliensis, when not in flower, looks more like a tuft of some blue-green rush than anything else, the slender, tapering stems being some nine inches in length. In the late spring each of these develops a brown, pointed bud at the top, and this expands into a very lovely six-rayed star of a clear lavender blue. A healthy plant in full bloom is thus a very delightful object, and one that never fails to attract much attention.

That A. monspeliensis dislikes root-disturbance is generally acknowledged; care is therefore essential in propagating the plant by division. Though I have moved old specimens with a good ball of soil without ill results, a plant doing well should not be interfered with. *N.*

THERMOPSIS.

THESE hardy herbaceous Legumes, the so-called sham Lupines, have never been common in cultivation. They are somewhat impatient of disturbance at the roots, and if lifted and divided, invariably dwindle away. For this reason, when established, they are best left alone. A fresh stock for renewal may be raised from seeds.

The plants require a warm, light soil and a sunny position.

The bright yellow-flowered Thermopsis caroliniana, grows four feet high, T. fabacea three feet and T. lanceolata one foot high; all are desirable border plants, less heavy in appearance than Lupins, for the golden flowers on the tapering spires are less crowded, and the trifoliate leaves, with broadly ovate stipules, more handsome. *Fred W. Jeffery.*

The Week's Work.

THE ORCHID HOUSES.

By J. Collier, Gardener to Sir Jeremiah Colman, Bart., Gatton Park, Reigate, Surrey.

Cypripedium. — The dwarf-growing Cypripediums, such as C. niveum, C. bellatulum, C. Godefroyae and the many hybrids of this section that have passed the flowering stage, may be repotted if they need it. The roots are very brittle and should not be disturbed more than is necessary. Previous to repotting them the plants should be allowed to become rather dry. In removing vigorous specimens from their pots, the receptacles should be broken and removed in portions. Pick away the old materials and leave the drainage undisturbed if it is surrounded by living roots. Ordinary flower pots are the most suitable receptacles and are preferable to shallow pans, as these Cypripediums are deep-rooting subjects. In repotting fill the pots to about one-third their depth with crocks and small pieces of limestone. A compost of equal parts good fibrous loam, from which the earthy portions have been shaken out, some Osmunda-fibre cut into short pieces, and sufficient crushed crocks and limestone mixed to ensure free drainage forms a suitable rooting medium. Pot rather firmly and place the plants near to the roof-glass in a house having an intermediate temperature. When applying water to the roots pour it around the inner edges of the pot, taking care that it does not lodge in the centres of the young growths or the axils of the leaves.

Odontoglossum.—After a long season of rest plants of Odontoglossum grande and O. Insleayi are commencing to grow afresh, new root action has become evident, and if quite necessary the plants may be repotted. Frequent root disturbance is harmful to these Orchids, therefore, repotting should only be done when more rooting space is needed, or the old materials have become exhausted or sour. These Odontoglossums are stronger rooting than most other members of the genus and should be grown in a somewhat coarse, open compost; two parts Osmunda-fibre, one part Sphagnum moss and a sprinkling of crushed crocks provide a suitable rooting-medium. Water should be applied to the roots with great care for some time after re-potting. During their season of growth the plants should be afforded liberal treatment, and water should not be withheld until the pseudo-bulbs are fully matured, after which they should again be given a season of rest.

THE KITCHEN GARDEN.

By F. Streeter, Gardener to Lord Leconfield, Petworth Park, Petworth, Sussex.

Asparagus.—It is not advisable to cut Asparagus after this date. Endeavour to build up strong, healthy growths with the aid of a concentrated fertiliser and liquid manure. See that the growths are kept in an upright position by stretching lines of stout twine on the outside of the rows. Keep the bed free from weeds at all times. If there is a shortage of ground, good crops of either Cauliflowers, Lettuces or Turnips may be grown in the alleys between the beds.

Runner Beans.—One very important item in the cultivation of Runner Beans is the staking, and unless this is done well the crop is often half spoiled. The tallest Pea stakes procurable should be thrust deeply in the ground along the rows and in an upright position, with stout poles at each end of the row, and other stakes about every ten yards on each side of it. Fasten three rows of stout, tarred twine round the whole to which to tie the Pea sticks. Place a very heavy mulching of well decayed manure over the ground and keep the latter quite moist by frequent waterings. Syringe the plants heavily at nights, and if exhibition Beans are required, keep the side shoots pinched out. Another sowing should be made now for autumn supplies.

HARDY FRUIT GARDEN.

By W. Auton, Gardener to Viscount Elveden, Pyrford Court, Woking, Surrey.

Peaches and Nectarines.—Trees on walls require constant attention in the matters of disbudding and training, as growth advances. As the lower shoot on the fruiting growth lengthens, train it in alongside this growth to eventually replace it. At the same time encourage the growth of the top shoot or one beyond the fruit to ensure it being nourished, and finally remove all other shoots unless there is room for laying one in at about the centre of the fruiting growth. Trees grown as bush or pyramids in open quarters are not quite so far advanced as those on walls, but the same principle of disbudding applies, and special care should be taken that the centre of the trees is kept sufficiently open to allow the sun and air to reach every fruit. Syringe the trees in both positions freely to prevent attacks of red spider or aphis. The old maxim, "Prevention is better than cure," has become such a platitude as to have lost much of its meaning, but its significance to the gardener is of the greatest importance, for much can be prevented by the timely and judicious application of water, which is the cheapest and best insecticide available. Clear water, forcibly applied, will dislodge a pest from the foliage with ease, but once allow the pest to entrench itself in curled leaves or behind a web and the best insecticide fails to do its work. See that the trees do not suffer from lack of moisture, as Peaches and Nectarines in particular make great demands on the borders at this stage, and frequent, copious waterings will be necessary under most conditions. Sucker growths, which are often the fault of the stock used, are frequently troublesome at this season. They should be removed immediately, or their effect will be to weaken the tree. If broken off near the surface new growth immediately follows, and it is much better to remove the soil carefully and cut them away from the roots with a sharp knife.

Cordon Trees.—The growths of cordon trees should be pinched when they have made six or seven leaves. The leading growth may be left its entire length for the present, but if the trees have almost covered the space allotted them, any leading growths that are very strong may be stopped a little later. This work should be done systematically and gradually so that the trees receive no serious check. Later, when the uppermost buds of the shoots now stopped break into growth, these secondary shoots should be pinched to one or two leaves. It frequently happens that from pressure of work the pinching of cordon trees is delayed until the shoots attain their full length, when they are all cut back, as a matter of routine, to five or or six buds. The presence of so much wood makes root action brisk, and should moist, growing weather follow this cutting back much secondary growth is almost bound to ensue, to the detriment of the tree. Pinching should be commenced so soon as the shoots have attained a reasonable length, and followed up as the needs of the trees dictate.

FRUITS UNDER GLASS.

By T. Pateman, Gardener to Sir Charles Nall-Cain, Brocket Hall, Hertfordshire.

Garden Frames.—The cold frames that have been used for the forcing of early vegetables will, by this date, be vacant, and they can be used for growing a summer supply of Cucumbers, especially where plenty of manure is available. It is surprising the number of Cucumbers that can be grown in this simple way. Frames that have been used for growing crops of early Potatos and other vegetables on hot-beds should be cleansed, a little sweet soil added and the Cucumbers planted on mounds of the new soil. If attention is given to relining the old hot-bed with fresh fermenting material a new life will be given to the hot-bed for a considerable time; when it is found that the heat is again declining remove the old manure and substitute fresh. Where manure is not available, mowings from the lawn will make an excellent substitute. If the summer proves warm external coverings are not needed, but should the weather be cold and sunless it will be an advantage to use an external cover at night to conserve as much warmth in the frame as possible.

Cultivation.—Cucumbers will grow in quite ordinary soil during the summer, provided attention is given to the feeding of the plants. When they have become established and are growing freely they should be fed liberally with liquid manure or some other suitable fertiliser. Pay strict attention to pinching the young shoots, which should be done at the second joint, or so soon as the fruits are visible, according to the space available, but in any case avoid overcrowding. Ventilate the frames early on bright mornings or the foliage will be liable to scorching, but close the frame again early with sun heat and moisture to obtain a temperature of 90°.

Frame Melons.—Melons may be grown in frames much in the same was as recommended for Cucumbers, but their watering is somewhat different. In the early stages they should be kept well supplied with water, but not to such an extent as to produce sappy growth, otherwise the young fruits will turn yellow and fail to swell. Endeavour to obtain sturdy growth, until such time as the fruits are set. Once the crop is assured the roots should be well-supplied with liquid manure until the fruits are nearing the ripening stage, when the amount should be reduced, but not to the extent to cause red spider to spread. Do not give the plants more moisture than is considered necessary, and when applied, let it be warmed to the same temperature as the frame.

THE FLOWER GARDEN.

By F. C. Puddle, Gardener to Lord Aberconway, Bodnant, Taly-Cafn, North Wales.

Shrubs.—Remove any seed-pods which may have formed on flowering shrubs. This especially refers to Laburnums and Lilacs, for these shrubs usually set seeds very freely, and if allowed to remain they have a very weakening effect on the growth of the plants. Grafted plants of Lilacs should be examined occasionally, and any suckers which have developed removed, or they may cause the loss of the grafted part of the bush.

Alpines.—Alpine plants growing in pots should not be allowed to suffer from lack of moisture at the roots, for although many of these plants grow in nature in apparently very dry fissures of the rocks, yet their long, thread-like roots penetrate to such a depth that the plants are not existing under such arid conditions as appearances would suggest. At the same time it is not a good practice to drench the pots constantly with water; the better plan is to keep the bed of ashes in which the pots are plunged in an even state of moisture, and so obviate the necessity of frequent applications of water to the plants themselves. In the case of the stronger-growing plants, the lights may be removed from the frames during the summer, but it is advisable to keep the lights over the more difficult subjects from the higher altitudes, and lightly shade them, rather than risk the danger of a heavy storm. Abundant air should be admitted at all times, and, if possible, the ventilation should be so arranged that the air passes over the plants in a direct current. It occasionally happens that some of the small-growing and rarer alpines are attacked by aphides and other insect pests, and the grower is sometimes in a quandary as to the safest means of combating this evil, whether by fumigating the plants, or spraying with an insecticide. In the case of Eritrichium and other plants which are impatient of moisture in their crowns, a mild fumigation is best, but care should be taken not to subject the plants to a close atmosphere longer than is absolutely necessary; an hour's fumigation is usually ample. For plants that can be sprayed or dipped, the safest insecticide that I have tried is Bentley's Orchid Insecticide; this specific does not contain soap, and it may be used with safety on plants with very tender foliage and those having hairy leaves, when soapy insecticides would have an injurious effect.

PLANTS UNDER GLASS.

By JOHN COUTTS, Assistant Curator, Royal Botanic Gardens, Kew.

Hippeastrums.—Where plants are raised from seeds, the latter should be collected towards the middle of June and sown forthwith in pots or pans according to the quantity available. After watering the soil the seed-pans should be stood on a warm propagating bed and kept shaded until germination takes place. When fit to handle, prick off the seedlings into pots or pans, and when the young plants are large enough place them singly in small pots. They may be grown on in pots until they reach flowering size, or next spring they may be planted out in a bed furnished with bottom-heat. By this treatment they soon make flowering bulbs, and much time is saved in watering. The following spring the plants should be ready for transference to their flowering pots. Old flowering bulbs should be well attended to as regards watering and feeding, taking care that they do not get infested with thrips or mealy bug. During July, plants of the earlier-started batches should have finished their growth, when they should be placed in a cold frame, keeping the lights on and fully exposing the plants to the sun.

Souvenir de la Malmaison Carnations.—These Carnations should now be layered, turning them out of their pots and planting them in cold frames for the purpose. In some cases it may be necessary to lay them on their sides to facilitate the work of layering. After layering the shoots, the frames should be kept shaded for a week or so during bright sunshine. When rooted the layers should be lifted and placed in suitable-sized pots according to the quantity of roots they have made. Where it is desired to grow specimen plants, last year's young plants should be potted on for this purpose.

FOR NORTHERN GARDENERS.

By A. T. HARRISON, Gardener to the MARQUIS OF AILSA, Culzean Castle, Maybole, Ayrshire.

Walks and Paths.—Where an annual application of weed-killer is permissible, this forms the most economical method of keeping drives and paths free of weeds, leaving only the verges to be trimmed, but where, for various reasons, the weed-killer may not be used, frequent hoeing with the Dutch hoe during dry weather is the only alternative, raking or sweeping the weeds off afterwards. Gardeners in the north have always had a liking for the neatly raked gravel path in preference to the smooth rolled path so prevalent in the south, and to cross the newly-raked path on a Saturday with a cycle or other wheeled conveyance was considered by some of the old hands as an offence of great magnitude.

Hardy Primula Seedlings.—Where these have been raised from seeds sown in boxes earlier in the year, they should now be ready for planting in nursery lines; if they have been pricked off once while quite small they will be better handled now, but in the press of spring work this may not have been done. A damp, shaded border suits most members of the Primula family, and should be chosen for them in preference to a sunny border. Leaf-mould may be added in generous quantities, as the object is to transfer these seedlings with good balls of soil to their permanent quarters in autumn. Many charming Primulas may be raised in this way, and for planting by the sides of a stream in partial shade they are very effective. P. japonica and its many hybrids are good, but with us they are eclipsed by P. pulverulenta, and the beautiful pink forms of the latter which were raised at or near Southampton, known as the Bartley strain. P. Cockburniana should be treated as a biennial, and although it may sometimes survive longer, it is of a transitory nature, and it is advisable to have a few seedlings available to replace those which disappear.

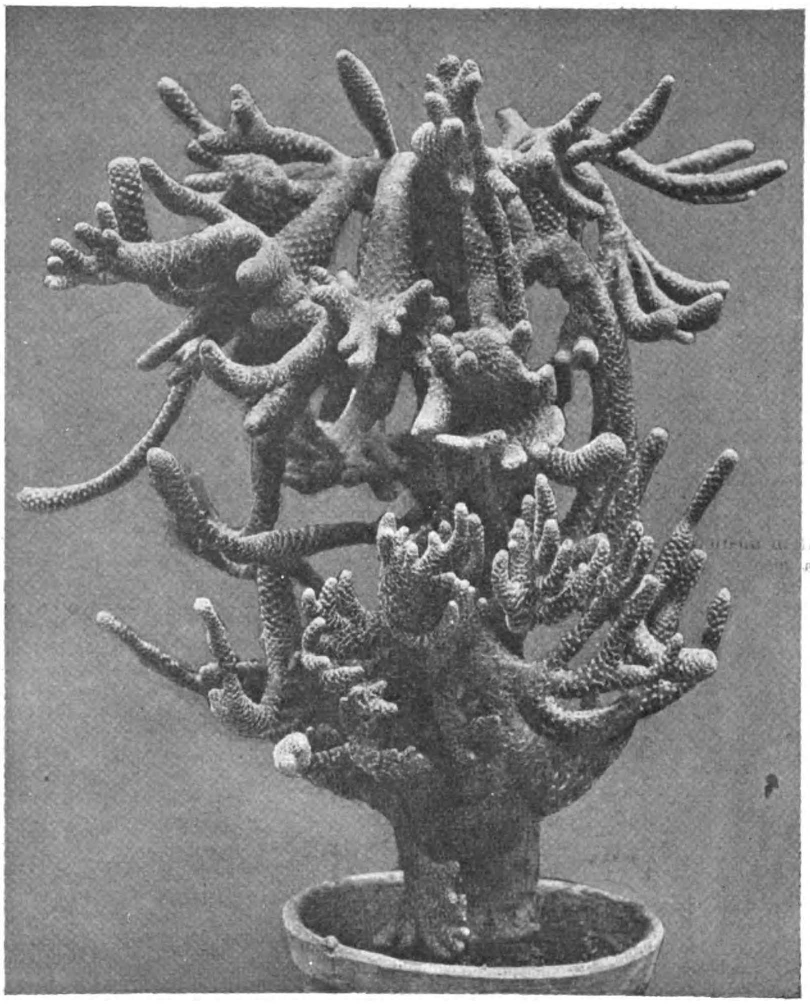


FIG. 220.—OPUNTIA CLAVARIOIDES.
Grafted on Opuntia Ficus-Indica.

INDOOR PLANTS.

OPUNTIA CLAVARIOIDES.

OPUNTIA is a very large genus comprising two distinct groups. In one the branches are oval in shape and flattened, while in the other they are cylindric and tuberculed.

Belonging to the latter group, O. clavarioides (Fig. 220) is a native of Chili, where it forms a much branched plant from one foot to one-and-a-half foot high. The short, cylindric, bronze-coloured branches are densely clothed with small and harmless spines, close to the surface. It is remarkable in having the branches either truncate or cristate at the apex, thus giving the plant a grotesque appearance. Although it was described so long ago as 1837, it is still a rare plant in cultivation, and when met with is usually seen grafted on one of the more robust-growing species. Placed in a sunny position near the roof-glass, it thrives in a sandy loam, with small brick-rubble added in sufficient proportion to render the compost thoroughly porous. Very little water is needed in winter, but during the plant's season of growth a liberal amount of moisture is required at the roots. The soil should not be allowed to get into a stagnant, saturated condition at any time, or the strongest of plants will soon die. *T.*

EUPATORIUM.

SEVERAL species of Eupatorium, including E. Raffillii, E. ianthinum, E. petiolare, E. grandiflorum, E. macrophyllum, E. Weinmannianum, E. riparium and E. trapezoideum, are suitable for indoor cultivation.

All these species may be propagated during June; cuttings root readily in a propagating case furnished with slight bottom heat.

Eupatoriums, generally, are not difficult plants as they grow freely in any good potting compost. E. Raffillii, E. ianthinum and E. macrophyllum enjoy an intermediate temperature during their growing season; the other species grow freely in an ordinary greenhouse, while E. Weinmannianum is best stood out-of-doors during the summer. The last species in time makes a large specimen, and should be pruned hard back during the spring.

E. Raffillii, if grown on for a second year, makes fine large specimens for standing in the beds, while E. ianthinum, which is rather slow-growing, is at its best in its second year. If small plants of E. petiolare are required for the plant stages, they should be rooted towards the end of August. *J. Coutts.*

BULB GARDEN.

SCILLA MARITIMA.

I WAS very much interested, when collecting plants in Majorca last April, in Scilla maritima. This plant is also known, and I believe more correctly, as Urginea maritima. I found it first on a rocky hillside near Alcudia, and subsequently in several inland localities. It is a most impressive plant, growing as it does in scattered colonies, always among rocks. The bulbs grow to an enormous size, as large as the largest out-size in Coco-nuts, and they sit with their portly forms completely exposed on the surface of the ground. In April, the plants were in full leaf, no flower, and the leaves bore a strong superficial likeness to those of Colchicum speciosum, though they were a good deal bigger and stronger. Later in summer these leaves turn yellow and die away, just as do the leaves of Colchicum, and then in August come the flower spikes; these I have not seen, but they grow four feet high, and the spikes of blossom are white. In a photograph which I have seen this Scilla look handsome when in bloom.

I collected a number of bulbs, a good many youngish, smallish ones and a few monsters, but the latter weighed four or five pounds each, and carrying them down a rough mountain side in a rucksack on one's back, with the temperature equal to high summer in England at its best, was a task which curbs enthusiasm for these splendid trophies.

I understand that Scilla maritima is hardy in the warmer parts of this country. Well-drained soil in the hottest, sunniest position possible would seem to be the conditions it would demand, but I should look upon it as a plant of very great interest rather than of remarkable beauty. Its gigantic bulbs sitting exposed among the rocks have a decided fascination. I believe the plant is the Scilla or Squill of medicine, and in Majorca the natives make a curious use of the plant in doctoring sick trees. They plant the bulbs, singly, or several together, at the base of the trunk of any fruit tree which is sickly, with the idea that this will cure it. I saw several big, standard Fig trees each with a thriving colony of Scilla maritima planted in a ring round its trunk. The trees in each case looked remarkably fit and prosperous, so apparently the charm had worked! *Clarence Elliott, Stevenage.*

ALPINE GARDEN.

HYPERICUM BALEARICUM.

THIS pretty shrub is excellent for a sunny position on the rock garden, if one is not too strictly insistent on purely alpine plants, for Hypericum balearicum is not by any means an alpine. Nor is it always reliably hardy north of London, though it will come through a fair amount of cold, provided the drainage is free. The habit is more or less upright, and the branches are clothed with tiny leaves, thick and leathery in texture, their edges crinkled and of a golden colour. The flowers are golden yellow, an inch across, and have the typical bush of thread-like stamens which make the flowers of all the family so attractive.

Hypericum balearicum is a native of Majorca, and when I found it there this spring it gave me the surprise of my life! I had always known it as a mere shrublet, a foot or two high. In collecting the beautiful Paeonia Cambessedesii on a certain rocky, sun-scorched hillside, I found myself battling through thickets of the Hypericum, great bushes of it which towered several feet above my head, and I cut myself a stout walking stick from the stem of one particularly stubborn specimen. H. balearicum might equal something of this sort in Cornwall or Dorset, but never, I am sure, in our part of the world. H. balearicum makes a very attractive pot shrub for the alpine house. *Clarence Elliott, Stevenage.*

FLOWER GARDEN.

ANCHUSA.

FOR providing a mass of blue colour in the garden, the Anchusa in its various forms, is of inestimable value; with the possible exception of the Delphinium, there is not another plant which will so easily provide us with a good blue in quantity, and very few border plants are more beautiful during May and June than the varieties of Anchusa italica.

A. italica itself is not unattractive though now superseded by its fine varieties; it was introduced from the Caucasus in 1810, bears purplish blue flowers in panicled racemes, and attains to a height of from three to four feet. The variety Dropmore, with its myriads of Gentian-blue flowers, is a feature of many gardens in the early summer, and is never more beautiful than when generously massed; to stake this plant is, to my mind, to rob it of some of its natural beauty, but if staking becomes imperative, an excellent method is to use twiggy branches as supports to the growths, thus dispensing with ties; care should be taken to keep the supports well beneath the flower panicles.

The variety Opal is a pale counterpart of Dropmore and exceedingly lovely, the opalescent blooms being very pure in colour; an intermediate form, Pride of Dover, is best described as a medium blue, and is a fitting companion to its two pretty congeners. The variety Lissadell is a newer form, rather deeper in colour than Dropmore and of more compact habit. These varieties are delightful subjects for bold massing, and are most effective when grouped with yellow flowers or grey foliage; they thrive in any ordinary good soil but prefer a rich, deep, well-drained loam, and will succeed admirably on chalk. These Alkanets are true perennials, but the plants sometimes become exhausted by profuse flowering, and it is well to maintain a stock in the reserve garden; propagation is best effected by root-cuttings, for although seedlings are easily and quickly raised, the resultant plants vary somewhat in colour.

A. myosotidiflora flowers early in the spring and is a truly delightful plant; the leaves are large, heart-shaped or reniformly cordate, those on the stem being ovate and hairy. The flowers are of a fine pure blue, and developed on a terminal and panicled raceme. This species grows about one foot high; it was introduced from Siberia in 1825, and has been referred to as Myosotis macrophylla; it is an excellent plant for the rock garden or border.

A. Barrelieri is an uncommon plant with blue flowers, having a white tube and yellow throat; it grows about two feet high. This perennial species was introduced from South Europe in 1820. The biennial A. capensis is somewhat tender, and requires protection in winter; the flowers are blue and produced in terminal, panicled racemes; the leaves linear, with a simple and hairy stem. It is a native of the Cape of Good Hope, and was introduced in 1800.

The indigenous A. officinalis is well-known as is also A. sempervirens, which is naturalised in some parts of Britain. *Ralph E. Arnold.*

TREES AND SHRUBS.

GINKGO BILOBA.

IN *The Gardeners' Chronicle* of May 29, there was a note concerning Ginkgo biloba at Kew. I was very much interested, and hope the following experience may interest your correspondent and perhaps other readers. During November, 1924, I was in north China and had the unique privilege of visiting the so-called sacred isle of Pu-tu, about fifty miles east of Ningpo. This island is a sanctuary for the whole of north China, and should any evil-doer reach its shores before capture, he is safe for life, provided he continues to reside on Pu-tu, where he generally becomes a priest or perhaps some lower form of temple dignitary. The place teems with very ancient temples, and students of ancient Chinese customs consider it the place to go to, other than Pekin, to study these antiquities.

Curiously enough, the precincts of the oldest temple contain very ancient specimens of Ginkgo biloba, greatly revered by all the priestly community. The Chinese hardly know how old these trees are, but consider them to have lived at least one thousand years. To the Chinese, a thousand years is not a very long time, since their civilisation extends over many such periods, but the curious feature about these old trees is their unkempt appearance, due to the falling off of very large limbs. The fractures showed either great brittleness or rottenness of the limb affected, but the growth of young branches indicated rather the former condition. They were growing in a sheltered hollow, and the island is not subject to cyclones being rather far north.

One of the priests showed me a very revered specimen in an inner court, which proved to be a very old Briar! By his attitude and tone it appeared to be very holy. He also had a few very small white Chrysanthemums whose blooms were placed in little bowls before Buddha and sundry other deities. In the very limited time at my disposal and a natural desire not to offend any customs or prejudices of the natives, it was only possible to make a few cursory observations at Pu-tu. *Robert L. Scarlett, Inveresk.*

ABELIA SPATHULATA.

THIS extremely pretty, deciduous, flowering shrub is better this season than I have ever before seen it, and its inclusion among spring-flowering plants is warranted by the display it is making.

It is a dwarf-growing shrub seldom exceeding three feet to four feet in height, and on this account might be made use of with good effect in the rock garden, as its slow-growing habit ensures that it will not unduly crowd its neighbours.

The creamy-white flowers are stained with yellow in the throat, and are produced in pairs on short side-shoots; they are slightly funnel-shaped at the top of a long, slender tube, at the base of which is the neat, rosy coloured calyx of five sepals, which are shaped somewhat like a spatula or spoon, from whence the specific name is derived. The species is a native of Japan, and was introduced to this country in 1880, but is not so frequently seen in gardens as the evergreen variety A. floribunda. *A. T. H.*

LONICERA CILIOSA.

SEEING a well-flowered plant of this fine Honeysuckle recently, I wondered why it is not more generally grown, for it is quite easy and hardy.

The plant makes luxuriant growth and clothes itself with its richly coloured flowers, which are yellow, changing to red, appearing, however, from a distant view, as deep, glowing orange.

It is a good climber for a pergola or trellis, and is very delightful when clothing an old bridge, as I recently saw it. It flowers in May and early June, and should be given a place in all gardens. *Ralph E. Arnold.*

DEUTZIA DISCOLOR FASCICULATA.

ALTHOUGH the individual flowers of this variety lack the size of the variety major, it is one of the best forms of the species for decorative effect in the shrub border.

The plant is of compact habit and grows some few feet tall. The flowers are of a deep pink shade in the bud, white when open, half-an-inch in diameter, and flat.

This Deutzia requires a moist, rich soil, to favour a vigorous, floriferous growth. After flowering, the old, worn-out shoots should be removed. *Fred. W. Jeffrey.*

ROSE GARDEN.

THE EARLIEST OF ROSES.

Careful observation justifies the assertion that we have had an unusual supply of very early flowers on the outdoor Roses, and this despite the general complaint that plant growth was practically at a standstill throughout the greater part of May.

The explanation is, I would suggest, that whilst growth was very slow it suffered no sudden and serious set-backs. It sometimes happens that a brief spell of early sunshine and warmth, such as we enjoyed at Easter time, starts Roses into growth with vigorous haste, and just as the embryo buds become discernible at the points of soft, sappy shoots, a sharp frost cuts them back, shattering the promise of early flowers.

This year there has been no undue haste on the part of the plants to make growth, and the slower progress has meant tougher substance, capable of enduring cold nights, and thus the Rose season actually started, at any rate, in the home counties, so early as Whitsuntide.

It is worthy of note that the earliest flowers have been produced, not by the new races such as Pernetiana hybrids, or the modern Hybrid Teas, but by the old Hybrid Perpetuals, Noisettes, Bourbons, and a few of the Teas which were our most cherished Roses of thirty or more years ago. The incomparable old Gloire de Dijon was, as usual, first to flower, and on the Sunday preceding Chelsea Show, I counted on one big plant, covering nearly half of a house front, forty-two tolerably good blooms, and in one road of substantial, old-fashioned houses eleven big old plants of Gloire de Dijon all carried a fair show of bloom at Whitsun. Reine Marie Henriette was just as forward on a high brick wall with a south-western aspect, and before the last day of May I had cut an immense and perfectly good bloom of Her Majesty, several of Ulrich Brunner, and a few of Captain Hayward.

The old white Rose Boule de Neige, opened in time to welcome June in, and several days earlier a far spreading old plant of W. Allan Richardson, had scores of blossoms, albeit the majority of them were white at the edges of the petals.

Backed by an old, but well-preserved Yew hedge, there is in a garden I frequent, a bed of Tea Roses, and here both Catherine Mermet and Maman Cochet opened a shapely and beautifully coloured bloom apiece ere the May sheet was removed from the calendar, and before June 5 there were on that bed several blooms of The Bride, Francisca Kruger, Souvenir d'un Ami, and Madame Hoste, all fine old Roses whose names are nowadays seldom seen in print. It is well, however, that we should not too totally ignore Roses that are capable of giving us so early a foretaste of what the Rose season has in store for us, and it would be worth while compiling a small list of the Roses which habitually bloom before the rank and file of the tribe are ready to display their charms.

Among modern Roses we have many which flower extremely well in late autumn, but whilst we can fully appreciate these flowers which are reluctant to leave the garden colourless in the waning days of autumn, it may surely be said that the first Rose of the season thrills the enthusiast with the greater power.

Prudent growers will do a little judicious knife-work on these early-flowering plants, especially when they are veterans and not so vigorous as they once were. By shortening the stems which have borne flowers, leaving only an eye or two at the base of each, the second growths will break stronger and the production of new shoots from the base will be encouraged. Such young growths should be carefully preserved, kept free from pests by spraying or dusting with Tobacco powder, and protected from injury by bruising either by tying them to older branches or nailing them to the wall. Next spring an old, decrepit branch may be cut out completely to make room for the new shoots; thus may an old climbing Rose be rejuvenated. *A. J. M.*

ORCHID NOTES AND GLEANINGS.

PHALAENOPSIS SCHILLERIANA.

Phalaenopsis consists of a genus of about twenty species of epiphytal Orchids which are natives of eastern India and the Malaya Archipelago. They include some of the most beautiful Orchids in cultivation, and have very short stems bearing a few thick, leathery leaves arranged in two ranks. The flowers are showy and are loosely racemose in arrangement. Phalaenopsis Schilleriana is one of the finest of the several species. The specimen reproduced in Fig. 221 is about twelve years' old. It is growing in a teak basket. There are seven leaves which are eight inches to sixteen inches long and three inches to four inches wide, grey-green in colour, mottled with dark green; the markings often run in parallel lines across the leaf towards its apex, and in young leaves they have a purplish tinge. The aerial roots which are flattened and "frosted," run in and out of the basket.

There were two sprays of flowers, one five-and-a-half feet and the other three feet long, carrying sixty-nine flowers arranged in two rows on their branches; no fewer than fifty-one buds dropped on account of the great heat. The largest flower measured two-and-a-half inches across. The petals are rotund and the sepals ligulate in shape; they are both of a fine rosy purple colour, shaded white on the edge; the two lateral sepals have brown dots at the base. The lip is trilobate; the central lobe is rosy white, and the lateral lobes white with brown dots at the base, with a yellow crest between them dotted with brown.

Our specimen has been flowering regularly during the past three years, and the display of blooms this season is more magnificent than that of any previous occasion. *H. C. Javaraya, Lal-Bagh, Bangalore, March* 1, 1926.

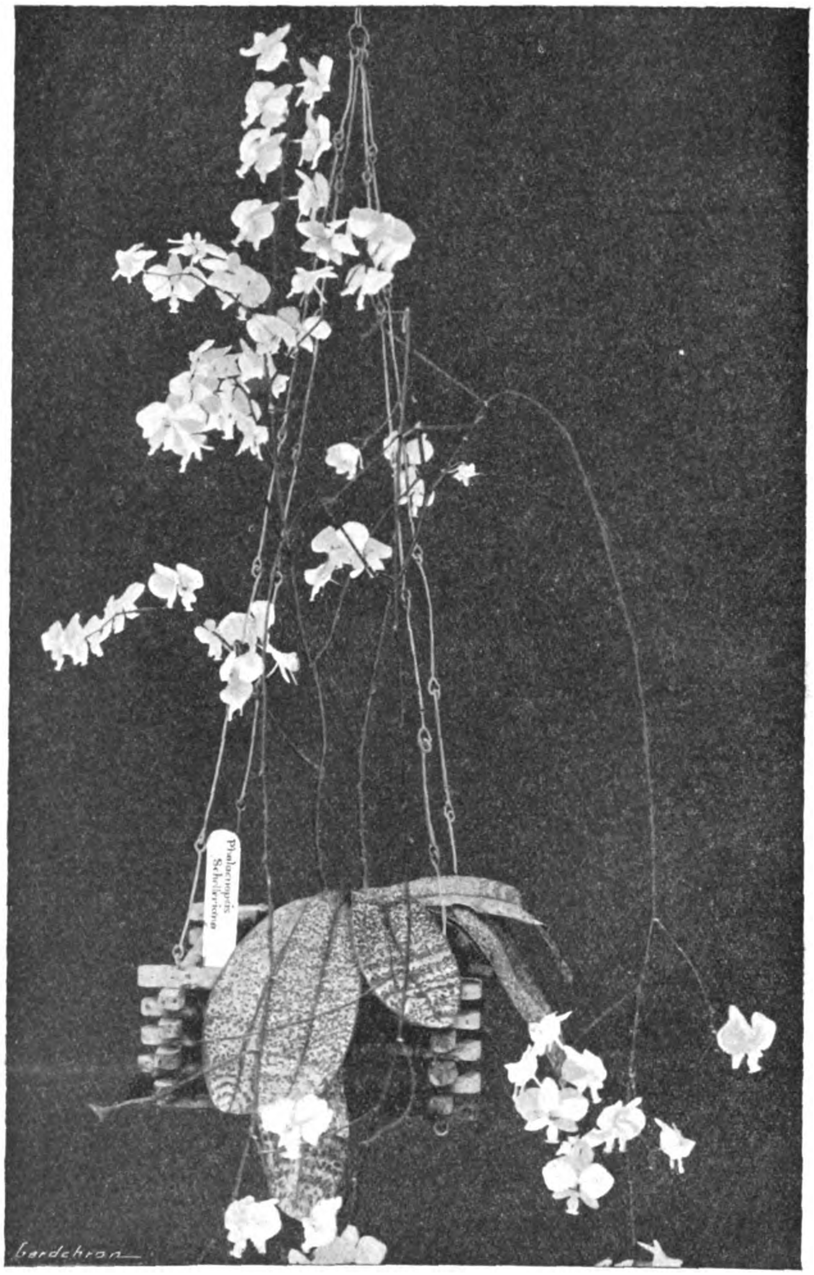


FIG. 221.—PHALAENOPSIS SCHILLERIANA.

CATTLEYA QUEEN MARY.

This very fine, free-flowering hybrid is derived from two well-known and greatly admired parents, *i.e.*, Cattleya Mendelii alba and C. Warneri alba. The original hybrid appears to have been raised by Mr. J. J. Holden, who exhibited it at Manchester in 1911. It has been displayed in excellent form at London exhibitions by Sir Herbert H. Leon, Bletchley Park; one of his specimens is represented in the Supplementary Plate presented with this issue. C. Queen Mary has white flowers with a little deep yellow, and possibly some pale mauve-purple, in the throat of the labellum. It is a lovely Cattleya, especially when represented, as shown in the Plate, by a specimen carrying sixteen flowers,

THE GENUS MECONOPSIS.

(Continued from p. 340.)

Polychaetia.

In *Flora and Sylva*, Vol. III, p. 80, Mr. A. K. Bulley refers to M. integrifolia. Later, on p. 191, he points out that there are two M. integrifolias going about the world, but seizes on an unessential distinction to prove his point. The fact is, though he is discussing M. integrifolia, he is all the time describing M. pseudo-integrifolia, as can be seen from the fine figure of a yellow Poppy with a long style. Mr. Bulley raised this plant from Koslov's seed, and states that it bore only basal, one-flowered scapes, whereas the plant hitherto called M. integrifolia had a central stem. The distinction is not valid, as will be shown presently. He further states that the two plants differ in the *character* of their hairs, which is not so: they are barbellate in both.

It was Sir David Prain who, on seeing the plant raised from Koslov's seed, recognised it as distinct from the original Russian plant (M. integrifolia of Franchet), and called it M. pseudo-integrifolia. Thus the yellow-flowered Poppy figured in *Flora and Sylva*, with a very long style, is this M. pseudo-integrifolia; and so, too, are many of the yellow Poppies exhibited at shows under the name of M. integrifolia. Farrer's description of M. pseudo-integrifolia in *The English Rock Garden* is misleading as well as inaccurate; nor is it peculiarly a product of 'the source of the Mekong'—wherever that may be; though Koslov's plants are said to have come from that locality. The species normally grows thirty to forty inches high, with a central, branching stem, bearing solitary flowers on pedicels, longer or shorter, in the axils of bracts. But I have frequently seen dwarfed plants, kept back by the late melting of the snow, in which the central scape has not developed, or at least not elongated sufficiently to hoist the flower scapes aloft, which therefore appear to be borne on solitary stems of independent origin. But that is not its normal habit.

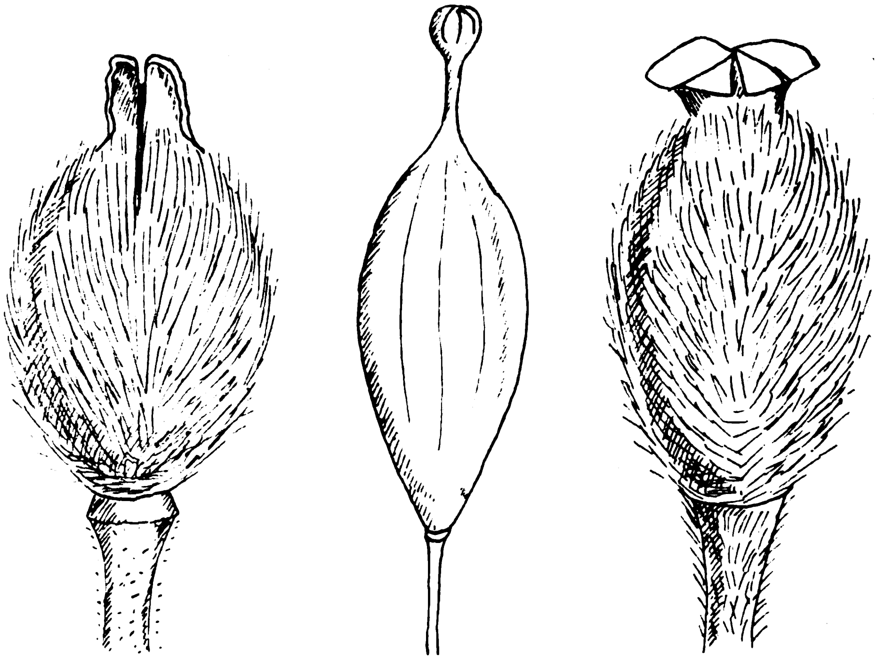


FIG. 222.—CAPSULES OF MECONOPSIS.

Left, M. integrifolia; centre, M. pseudo-integrifolia; right, M. brevistyla; all enlarged.

Thus there were, as we now know, three plants, quite distinct as regards style and stigma, masquerading under the one name, M. integrifolia, until Prain distinguished M. pseudo-integrifolia. These were (i) The original plant found by the Russian explorers—M. integrifolia of Franchet. (ii) The plant found by the French Fathers, also called M. integrifolia by Franchet, and (iii) The second plant found by the Russians, distributed as M. integrifolia, and subsequently named M. pseudo-integrifolia by Prain. The next step was to compare the Russians' (i) with the French Fathers' (ii). But since it had not occurred to anyone that they might be different—such is the confidence in these *obiter dicta*—this was not done for a long time, and might not have been done yet, but for a happy chance. Besides, the material was inadequate for a proper comparison.

Light came from a new angle. Mr. Forrest sent home a yellow-flowered Poppy, which, in a letter, he described as different from M. integrifolia, so far as he remembered that plant; at all events, it was not, he considered, Mr. Wilson's M. integrifolia, and was therefore probably a new species. Sir David Prain then went into the question once more, and found that Forrest was right. His plant was not Wilson's M. integrifolia (which happily *was* the same as the Russian's original M. integrifolia of Franchet, otherwise there would have been more trouble; but it *was* the same as the French missionaries' original, called M. integrifolia by Franchet. Clearly, then, Franchet was wrong the missionaris' plant was not M. integrifolia, and Prain, though not prepared to accord it specific rank without further evidence suggested to Professor Bayley Balfour that it might be called either M. integrifolia var. microstigma, or M. pseudo-integrifolia var. brevistyla, according to which was assumed to be the original. However, Professor Bayley Balfour, for some unknown reason, decided to split the difference, and Forrest's plant was actually distributed from Edinburgh under the name M. integrifolia var. brevistyla.

Now there can be no question that M. integrifolia and M. pseudo-integrifolia are quite distinct; it is the intermediate species or varieties which are troublesome, namely, this M. integrifolia var. brevistyla, and still another alleged variety, M. integrifolia var. Souliei, described by Dr. Fedde. As regards this last, Sir David Prain, who has seen the Berlin specimen, is convinced that it is merely M. pseudo-integrifolia. That leaves us with three botanically distinct, yellow-flowered Poppies to deal with.

I have frequently seen, and collected, all three varieties in Yunnan and Szechuan, and they appear to me to be easily distinguishable in the field. Nor is the distinction confined to the style and stigma though most easily observed there in herbarium specimens.

Both Sir David Prain and Professor Bayley Balfour were content to call the third species a variety; is it a form of M. integrifolia?—if so, the name microstigma is the more correct. Or is it a variety of M. pseudo-integrifolia?—in which case the name brevistyla is better. The former name has never been used, and the plant, when recognised, as distinct, is usually called M. integrifolia var. brevistyla. But the plant has just as good a claim to specific rank as has M. pseudo-integrifolia, and it would, therefore, be both simpler and more in accordance with facts to call the plant M. brevistyla, and have done with it, since there are other grounds for raising it to specific rank.

The reason why confusion has arisen in gardens is fairly obvious; three names are known but only two plants. M. brevistyla is not in cultivation, and probably never will be. It is a 'sub-arctic alpine,' and, as already remarked, the climate of Britain is nowhere sub-arctic. Certain plants have been *assumed* from the start to be M. brevistyla, or M. pseudo-integrifolia, and have then been compared with each other and found to be indentical, or perhaps identical with M. integrifolia. So they were, no doubt; it was the original premis which was wrong, not the conclusion. M. integrifolia is now fairly common in cultivation; M. pseudo-integrifolia less so. The three species may be distinguished as follows.

M. **integrifolia** (the 'Lampshade Poppy').—Hairy plant of twelve to fifteen inches. There is a central stem bearing from near the base a number of one-flowered axillary pedicels. Flowers gamboge, often very large and globe-like. Capsule ovoid, with four to six ridge-like stigmatic rays (Fig. 222). No style. Dehiscence by four to six apical parts. Alpine moorlands, 13,000-14,000 feet, scattered in small clumps. In cultivation, and does fairly well.

M. **pseudo-integrifolia** (including M. integrifolia var. Souliei).—Plant thirty inches high, but not so hairy as the last. There is a tall central stem, bearing axillary, one-flowered pedicels, which eventually appear all to spring from one level, and do not reach the height of the main scape. Flowers paler than in the last, sulphur-yellow, not so large, flatter and more open. Capsule obconic, nearly glabrous (Fig. 222). Style long, with a fluted, knob-like stigma. The capsule opens by eight to ten valves, the tips of the valves curling right back. The plant is found scattered in small colonies in shady situations or under trees along the banks of streams. It is in cultivation, usually under the name M. integrifolia, and does fairly well. It sometimes happens that this species is starved or otherwise retarded, and so stunted that the branch pedicels, which, as already stated, arise at one level, appear to spring directly from the ground; but this is a mere variable growth habit, and of no diagnostic value.

M. **brevistyla**.—Plant of twelve inches or less, bearing one or two single-flowered pedicels arising near or at the base of a central stem. Whole plant very hairy, with long, champagne-coloured hairs, drying tawny, to orange. Flowers bright cadmium yellow, often very large. Capsule narrow, ovoid (Fig 222). Stigma flattened, consisting of six to eight stellate rays; style very short or 0. The fruit opens by six to eight small apical parts. Plants widely scattered on barren limestone or igneous screes, above 16,000 feet in regions where the winter months are dry. Not in cultivation. Plants of this name at Edinburgh are usually M. integrifolia. The illustration in Fig. 222 shows the differences between the three capsules. I pass on to two yellow-flowered species collected by me in Tibet, both of which belong to this alliance.

K.W. 5,749 is a tall plant of thirty inches, bearing so many as a dozen sulphur-yellow flowers, up to five inches in diameter. It grows scattered over the open Rhododendron moorland north of the Tsangpo. It resembles M. pseudo-integrifolia in size and habit, as well as in its long style, but it is a much more hairy plant, in that respect resembling M. brevistyla. The capsule is altogether bigger than that of M. pseudo-integrifolia, reaching a length of one-and-a-half inch to one-and-three-quarter inch with a style three-quarters-of-an-inch long, and the distinct stigmatic rays are not matched by the small, knob-like stigma of M. pseudo-integrifolia.

Nevertheless, so alike are the two plants in habit, foliage and flower character, that I hesitate for the present to give this Tibetan plant specific rank, and would regard it rather as a variety of M. pseudo-integrifolia; at least, until plants are raised from the seeds brought home, and compare them.

K.W. 5,984, 5,910.—This is typical M. brevistyla. It agrees with M. integrifolia in all respects except the stigma; there is, however, a peculiarity about the stigma which I have never noticed in M. brevistyla. In our Tibetan plant the stigma is hollow, receptive only in the inside, expanding after the flower opens, with six diverging, decurrent rays. Probably it is protandrous too. It is a plant of one foot or less, the main stem ending in a flower; there are also one or two basal one-flowered pedicels. Style 0—there is sometimes a trace of a style in M. brevistyla, not always. Petals six to nine. Found on screes at 16,000-17,000 feet, widely scattered, or in small colonies. Rather rare. Seed was obtained, but the species being sub-arctic is likely to be no more successful in this country than M. brevistyla.

The remaining plants in the sub-section Grandes are M. grandis, M. punicea, M. quintuplinervia, and M. simplicifolia.

M. punicea is the beautiful, cherry-red plant of North-western Szechuan and Kansu. It appears to be local, and of restricted range, though not rare in its particular region. I have never seen it wild, or in gardens either. Once upon a time it was in cultivation, but it is now lost; and though there are whispered rumours of its existence hidden away in some remote sanctuary, it must have taken the veil, for never does one look upon its blushing face. Assuredly it is a wanted plant. It is figured in the *Botanical Magazine* (tab. 8,119), having been raised from seeds collected by Wilson.

M. quintuplinervia also is a plant of North-west China, where it has been met with by a generation of travellers. It has been introduced several times, and last by Farrer, to whom we owe such plants as linger in our gardens; but every generation of plant collectors will have to reintroduce it. Farrer spoke in glowing terms of the 'Harebell Poppy'; beautiful as it must be in the wild state, however, it is often a rather forlorn looking object with us. The dark blue or violet petals sometimes come a washed-out purple, and then it is simply indecent. It grows in meadows and is perennial. Probably it never sets good seeds in this country, but may be propagated by division.

M. grandis, though in cultivation, is almost as rare in Britain as it is in Sikkim, where it is known from a single high pass. It is a magnificent species, with rich violet, nodding flowers. Though not an easy plant to grow, it sets seeds at Kew.

M. simplicifolia is now a fairly well-known garden plant, and worthy to be even better known. A certain amount of confusion has arrisen concerning it, and this will be endeavour to clear up. Growers tell us to-day that M. simplicifolia has small, dingy purplish-blue flowers, and is perennial. Sir Herbert Maxwell writes that it *sometimes* flowers a second and even a third year, and that the flowers are dark blue, tending to purple. Similarly in *Flora and Sylva*, Vol. III, it is stated that the flowers are a deep rich blue, shaded towards the edge with rosy-purple, and more lasting than those of any other species.

In 1913, Major Bailey sent home seeds of a Meconopsis collected in the eastern Himalaya, and plants raised at Edinburgh flowered in 1915. According to Sir David Prain, Edinburgh also raised plants from seeds collected on the Yunnan-Tibet frontier, which is several hundred miles further east. These flowered apparently in 1911. The same authority states that they all agreed in every detail with the specimens of M. simplicifolia already known from Sikkim and Tibet.

But the specimens already known from Sikkim and Tibet must have been the sky-blue biennial, evidently, as is proved by the figure in the *Bot. Mag.* (tab. 8,364), which has sky-blue flowers. This was introduced by Hooker so long ago as 1848. *F. Kingdon Ward.*

(To be continued.)

THE FERNERY.

POLYPODIUMS.

The genus Polypodium is a very extensive one, comprising several hundred species, distributed over the greater part of the world, but the present note will be confined to the four well-known British species.

P. vulgare, the common Polypody, is the type of the genus, and differs essentially from the other British Polypods in the character of having its fronds articulated with the rhizome, that is, attached in such a manner that they separate spontaneously as they approach decay. Its texture, too, is stouter and firmer than that of the native species which are allied to it by their fructification. In its normal form it is also less divided than the others. The small specimens found growing on walls and in other dry, exposed places, are erect and rigid, but in situations where it grows with more vigour the plant becomes drooping and picturesque in character.

This Fern is easily cultivated in light, porous soil, where the rhizomes are kept on the surface, but if planted deeply or on stiff, retentive soil, it dwindles and eventually perishes. It sometimes adopts an epiphytal character, and may frequently be found growing on pollarded trees. Adaptability is one of its strong points, for while it is usually considered that constant moisture, perfect drainage and moderate shade are essential conditions, it often exists in health naturally with little or none of these conditions, as many an old wall bears evidence. It increases readily by dividing the branching rhizome.

There are in this species no fewer than seventeen varieties sufficiently distinct from each other to bear varietal names, but at the same time, and particularly in a state of cultivation, these in many instances merge into each other and connect by a series of links, the normal with the most compound form.

P. v. semilacerum, the so-called Irish Polypody, but which is not confined to Ireland, is the most compound of all the fertile forms of the species, and is permanent under cultivation. P. v. cambricum, the Welsh Polypody, is also highly compound, under all conditions uniformly barren, and permanent under cultivation. The primary lobes are crowded, overlapping and somewhat crisped; they are deeply pinnatifid, and the lobules are again lobed, the lobulets being toothed, and it is probably the most beautiful of all known varieties of Polypodium.

P. Phegopteris, the Mountain Polypody, or Beech Fern, is readily known from its congeners by its outline, which is ovate, triangular, with an elongated, narrowed point; by the pinnato-pinnatifid mode in which its fronds are divided; by its hairiness, and by the direction of its pinnae. In cultivation, the Mountain Polypody requires an abundant supply of water, and at the same time, in order that this supply may not stagnate about the roots, very perfect drainage should be provided. Turfy peat mixed with leaf-soil and sand forms a good compost, and the full beauty of the fronds can only be secured by growing the plants in a sheltered position. This Fern is not liable to much variation, but occasionally, division of the pinnae or pinnules produces multifid forms.

P. Dryopteris, the Oak Fern, has a loose, spreading habit and ternate or three-branched fronds. The perfect smoothness of its fronds is also a distinguishing characteristic. This species is a moisture-loving plant, although, as in most other instances, the moisture must not be stagnant. It is also a peculiarly shade-loving plant, for although very hardy and capable of existing under considerable exposure, the delicate fronds become damaged and disfigured unless shade and shelter of some kind are afforded them. It is a good plant for a shady outdoor rockery, grows readily in pots, and is increased with facility by division of the rhizome.

P. alpestre, the alpine Polypody, is a much less-known plant, and is easily distinguished among the British Polypods by its short, thick, erect, tufted caudex and lanceolate form of the frond. Its distribution is much more restricted, but in the mountainous districts of northern Scotland it is one of the most abundant of Ferns. It is seldom seen in such thriving condition under cultivation as in its native hills. It is a very variable plant, and some of the forms have an analogy with those of Athyrium Felix-foemina, but the fructification is quite different. *A. P. C.*

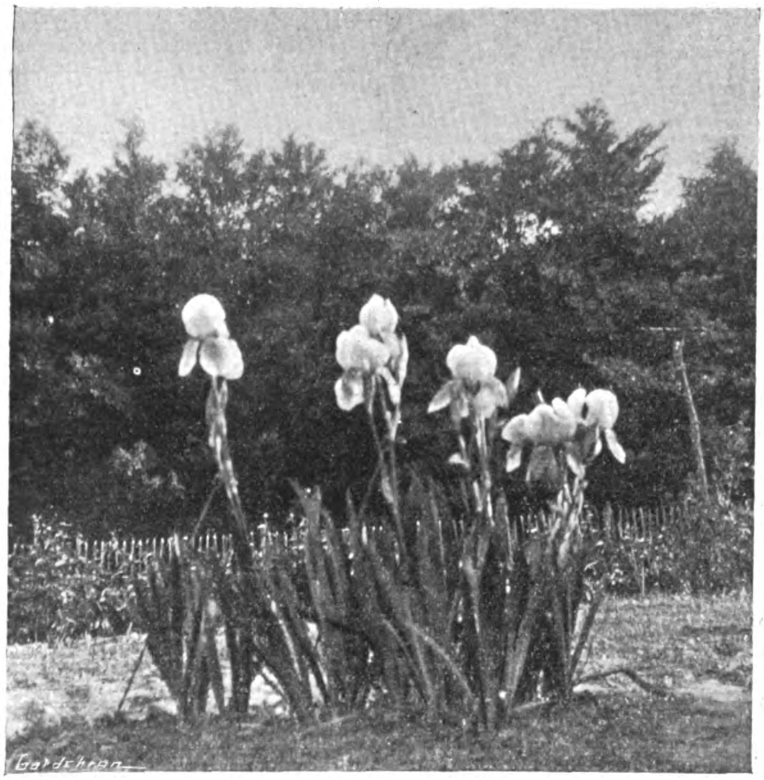


FIG. 223.—IRIS W. R. DYKES: THE ORIGINAL PLANT AS FLOWERING THIS SEASON (see p. 442).

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FRUIT-GROWING IN EAST NORFOLK.

THE annual tour of fruit plantations, which proved such a popular feature in the activities of the Federation of British Growers, is being carried on by the National Farmers' Union since the amalgamation of the two bodies. This year's tour, which took place on the first three days of June, and attracted nearly two hundred growers from all parts of the country, covered the eastern section of Norfolk, with Cromer as headquarters. The fruit-growing lands of this district are mainly easy-working loams of great depth resting on chalk, and are of high fertility. Although the rainfall is low (only 26.48 inches in 1925), and the soils for the most part what growers from other districts would call distinctly light, they do not dry out readily. The disadvantages of the locality for fruit culture are full exposure to east winds and the absence of near markets of any size.

Black Currants.

In recent years East Norfolk growers have specialised in Black Currants and have worked out and almost standardised a system of culture which is presumably the best for local conditions, but may not necessarily be ideal for other parts of the country. Crops of two tons per acre are said to be quite common in a good season, whilst yields at the rate of four tons per acre are sometimes secured on small areas. That local conditions are particularly suitable for Black Currants is indicated by the fact that some of the woods surrounding the plantations are filled with seedlings which spring up where birds have dropped the seeds. This year, unfortunately, such yields as I have mentioned will not be obtained except perhaps in very small patches in particularly favoured spots. A few weeks ago, when the bushes were in bloom, it seemed likely that the growers would have bumper crops to show their visitors; but cold east winds experienced at that time have caused the crop to "run off" since to a most unusual extent, with the result that the yield will be very light indeed for the district. In the case of some of the older plantations, indeed, the crop hardly appears to be sufficient to pay for picking. The trouble has affected particularly the varieties of the French type, on which most of the growers chiefly rely, and which, in the majority of seasons, give them the best results. Boskoop Giant also has "run off" badly, but Baldwin, which does not enjoy a great local reputation, is showing decidedly better promise this season, doubtless owing to its later blooming.

However, even in the absence of promising crops, the efficiency of the local system of culture could be realised. The size and development of the bushes are astonishing. When planted as maidens they often reach bearing condition in their second year, and by the third season after planting they are quite large bushes, capable of carrying a heavy crop. The uniform nature of the soil over wide areas gives remarkably even growth, and the care taken to secure healthy stock ensures a high average performance per bush, and the minimum of gaps caused by the removal of "reverted" bushes. Single plantations up to fifteen acres in extent may be seen closely planted with Black Currants alone, practically uniform in appearance all over. The crop is generally the only occupant of the land, and is seldom seen as an intercrop in plantations of top fruits.

System of Culture.

One-year-old bushes are generally planted, sometimes even cuttings, but two-year-old bushes rarely. The rows are made from six to eight feet apart, and the bushes spaced at three feet to four feet in the rows, according to the strength of the variety and the nature of the soil. On some of the richer land eight feet by four feet is becoming popular. The appearance in any case is that of almost unbroken rows of bushes, with just enough width in the alleys to allow of horse cultivation. It is considered to be most important to avoid any disturbance of the roots and to give the crop a rich rooting-medium right from the start. Farmyard manure is depended upon almost exclusively, it being the general rule to keep pigs under cover for the express purpose of producing manure. In the autumn the rows are cleaned by hoeing off the weeds, a dressing of manure applied, and covered with a few inches of soil thrown up towards the bushes by means of a plough. Further manure is then sometimes spread in the furrow and this again covered with the plough, so as to get some manure on to the spaces between the rows. This annual dressing of farmyard manure is considered by most of the growers to be essential, though some of the older plantations are occasionally dressed with complete artificials instead The young bushes are cut back hard on planting. If they throw up only one shoot as a result, this is again cut down in the following winter; but if two strong shoots form, only one is cut back and the other allowed to fruit; whilst bushes that produce three strong shoots in response to the first cutting back are allowed to retain all three for fruiting. In after years a moderate amount of cutting out of old wood is the general rule, so soon as the bushes can spare any. There are, of course, modifications of the system practised byi ndividual growers; but in the main the above appears to be the general system of culture.

Varieties of the French type have a high resistence to bud mite in this district, which is one reason why they are favoured. Spraying with lime-sulphur for the control of this pest does not appear to have been adopted to any extent; but many growers spray their bushes in winter with one or other of the new tar-oil washes to prevent aphis attack. This has served them well this year, as aphis is unusually severe on Black Currants in most parts of the country. Not only does this pest spoil the fruit because of the sticky honeydew produced, but it also checks the young shoots, and, worst of all, probably spreads "reversion."

Some of the Plantations.

Messrs. Tyler Bros. have about forty-five acres under Black Currants at Southrepps. Four varieties are planted to ripen in succession these being Boskoop Giant, Westwick Champion, Victoria and Baldwin. The Victoria is a special selection raised on the place, which is longer in the strig than the ordinary type, and does not share with the latter the dislike of jam manufacturers. It generally gives the best crop on this place, as it is doing this year. Very little aphis was seen here, though no spraying had been done, the place always having been lucky in this respect. A large cutting bed caused surprise because of the small, slender pieces of wood which had been utilised. This is done purposely, because small, short bushes about eighteen inches high with plenty of buds, are favoured for planting. Such bushes receive little check when transplanted and throw up plenty of shoots. About five hundred pigs are kept under cover to make manure. The plantations are very flourishing and usually crop heavily. Baldwin has been known to give two tons to the acre as a first crop two years after planting.

Although not connected with fruit-growing, mention must be made of some fine houses of Sweet Peas grown for the cut-bloom trade. Each plant is trained as a single stem up a cane to the top of the house. When the plants reach the glass they are laid down and again started up canes further along the row. They are laid down in this way and taken up to the top of the house three times. It was not surprising to learn that the fine blooms realise the highest prices in the market.

Mr. W. W. Bracey has a large acreage of fine Black Currants at Potter Heigham and Martham. The plan of mulching with manure and covering with the plough, to which reference has already been made, is here carried to the extent of moulding up the soil quite high along the rows. It is considered that the bushes keep on sending out fresh roots into this mound of soil and manure from points higher up the branches each year. Other growers, however, seem to keep their cultivation more or less on the flat. Some of the bushes that were planted in their permanent quarters as cuttings have made remarkable development in a very short time. Mr. Bracey regards the Black Currant as the delicate child of the fruit family, and considers that it requires most careful nursing in infancy, maximum nourishment in youth, and tender care and good feeding in after years. Heavy annual dressings of manure are given.

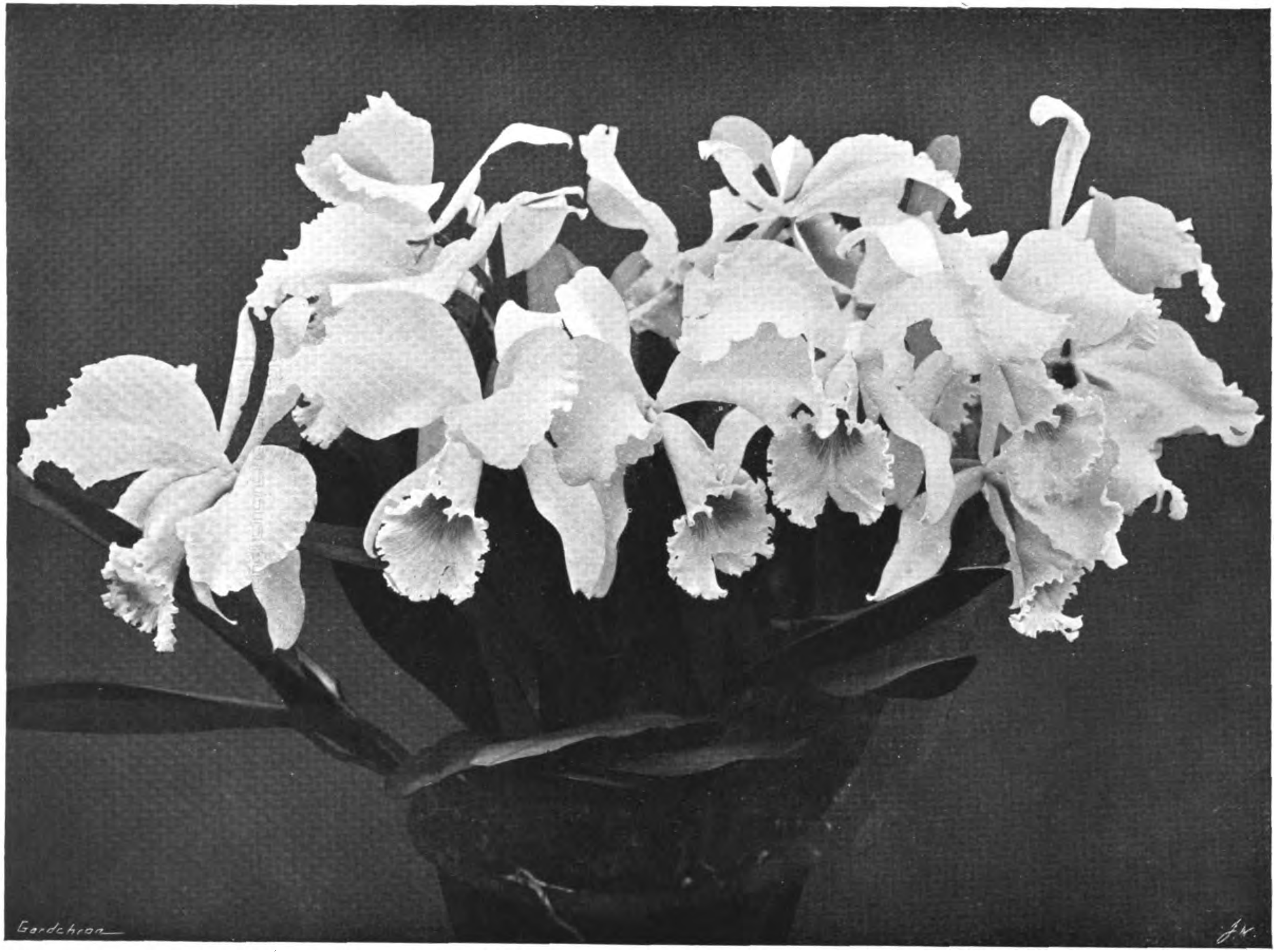
Mr. G. S. Durrell, Aylesham, in addition to some thirty-five acres of Black Currants, grows about ten acres of Strawberries; but most of these do not look particularly promising this year. A notable exception is a plot of Madame Kooi, which presented a truly astounding appearance. Owing to lack of time and opportunity, last year's runners were never cleared off. All the runners between the rows were in full bloom as well as the plants in the rows, so that the plot appeared as a sheet of blossom. Some of the visitors estimated the probable crop at something like four tons to the acre.

At the Tunstead nurseries and fruit farm of Messrs. Daniels Bros., a feature of interest is a large acreage of their new Black Currant Daniels' September, which is valuable as being the latest of all varieties and is a fine fruit into the bargain. Like other varieties, it does not show its true cropping powers this year, but the bushes looked vigorous. The late season of Daniels' September (it can be marketed in August) secures high prices for the produce.

The heaviest crop of Currants seen during the tour was a fortunate plantation of Baldwin on Mrs. J. C. Blofield's fruit farm at Hoveton. This did not seem to have "run off" to any extent, and will give a very heavy yield. In the Apple plantations here some Lord Derby bushes are showing fair promise, and with less of the blossom wilt which is so common on this variety in most places this season.

Westwick Fruit Farms.

The most interesting visit of the tour was that paid to Col. B. J. Petre's fruit farms at Westwick, which are most ably managed by Mr. George D. Davison. A fourteen-acre plantation of Cherries first came under review



CATTLEYA QUEEN MARY (C. MENDELII ALBA × C. WARNERI ALBA).

These trees were planted ten years ago, on what is locally considered to be a very thin soil over sand, on the recommendation of one of Messrs. Bunyards' representatives, who pointed out a flourishing wild Cherry growing close by as evidence of the suitability of the land for this crop. This opinion was right, for the trees have flourished, and this year are carrying a very good crop. The land between the trees was first cropped with Black Currants, but these have since been grubbed and the plantation allowed to grass itself down, the herbage being kept closely grazed by sheep. As the soil contains only ·05 of lime, the deficiency has been made good by the application of lime on two occasions. The satisfactory cropping of Early Rivers in this plantation is considered to be due to the proximity of Waterloo to serve as a pollenator.

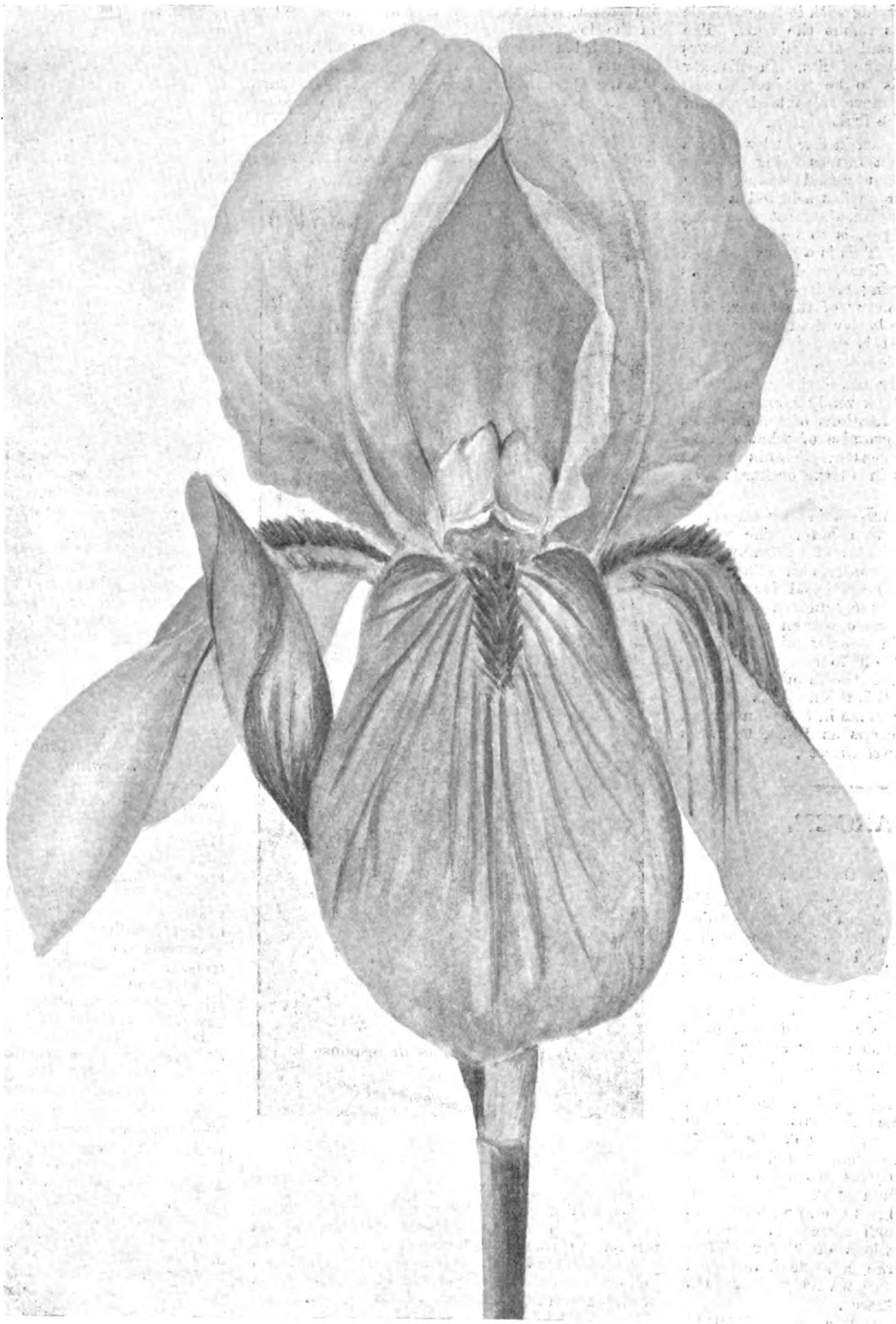


FIG. 224.—IRIS W. R. DYKES.
Reproduced from a painting by Mrs. W. R. Dykes.
(see p. 442).

The Apple store on this farm has been proved on test, by means of Apples from one centre sent for keeping to a number of different stores, to be one of the best in the country. It is operated simply as a cold-air store, on the principle which I described in the issue of this journal for December 19 last. Briefly, the temperature is lowered so soon as cool weather comes in autumn by admitting air when the thermometer stands lower outside than it does inside the store, and is kept so far as possible at that level by closing the ventilators when the opposite conditions prevail. By opening and closing the ventilators as required during the period of storage, the temperature within the room is kept fairly even. The older store has been made by building a wooden floor in an old barn seven feet above the ground, and would not seem to be by any means ideal; yet Apples have kept in it better than in cold stores and gas stores in other parts of the country. A newer building is being arranged with much more efficient means of ventilation, and is to be experimented with until the ideal is reached. In this the cold air from outside will enter through shafts at the ground level, and will be evenly distributed to all parts of the floor. The warm air will rise and pass out through vents in the ceiling, carrying with it the carbonic acid gas which collects about the fruit. The Apples are graded and stacked in trays so that air can reach all the fruits. In this new store the earth floor is to be retained to see whether it will give a more suitable degree of humidity for keeping the fruit plump.

Black Currants were seen in fine order on this farm, some of the oldest bushes being six feet high. Mr. Davison has raised some 8,000 seedlings, out of which he has selected a very few as worthy of cultivation, the most promising of which, Davison's Eight, is to be distributed in the coming autumn. This is a cross between Baldwin and Boskoop Giant, and, as it shows much of the free-cropping habit of the former with the large size of berry of the latter, it is hoped that it will prove better than any variety we have at present. It is cropping quite well even in this unfavourable season.

Westwick is the only place throughout the tour at which Apples look really happy. Here there are some fine plantations of both bushes and standards, giving promise of what will be a fair crop for this bad season. Scab is making its appearance, as it is in all the orchards seen in Norfolk.

The business of manure-making by means of pigs is splendidly managed here. The young pigs run in the plantations and cultivate them until they are about six months old. They then go to the buildings to be finished for market. These buildings hold three hundred pigs, and are so well designed that one man and a boy can feed the animals in twenty minutes. The manure is thrown out on to sloping concrete floors under cover, and the liquid drainings run in to a tank. From this the liquid is pumped through mains to other tanks in the plantations, and is used on such crops as Black Currants and Raspberries. *Market Grower.*

IRIS GARDEN.

IRIS W. R. DYKES.

Rather more than a year ago, when Mr. Dykes was looking over his beds of bearded Irises, which were then enjoying the hospitality of the old garden attached to the John Innes Horticultural Institute at Merton, he saw a flower which, in his own words, momentarily made him shout for joy. It was nothing less than a magnificent yellow-flowered Iris, of a type for which he had been striving for years. Picking the bloom, Mr. Dykes carried it in a vase of water to his office in the Royal Horticultural Society's building in Vincent Square, where in due course it was shown to several friends. Later on, he took the bloom to his house at Sutton Green, where, with her accustomed skill, Mrs. Dykes painted a faithful and life-size representation of it. The illustration on p. 441 (Fig. 224) has been prepared from that drawing, and though correct in size and every detail the limitations of flower photography, where colours are concerned, are such that it gives but a comparatively poor idea of the character of the flower.

The appearance of a fine June-flowering bearded Iris of this nature is something of an event in the horticultural world, for while white, purple, lavender and various so-called shades of blue, as well as bronze, are well represented, it is no disrespect to raisers of new Irises to say that a yellow-flowered "self" of the first rank has hitherto been wanting.

Wild yellow-flowered Irises of the Pogoniris section are neither new nor very rare, but they are not common in gardens. Probably I. chamaeiris and its varieties are more often cultivated than the others. I. flavissima and the almost impossible I. Bloudowii each have yellow blooms, and the colour of the last-named is particularly fine. Occasionally, the flowers of I. Reichenbachii are yellow, and those of I. Potanini, too, and I. mellita, but the first-named pair is for specialists and not for garden cultivation. Sometimes yellow rather than green predominates in the colouring of I. imbricata, and there is a good deal of yellow in the flower of the old I. variegata.

Of garden varieties there are a few with yellow blooms among the earlier-flowering group. Orange Queen, florida and lutescens—seedlings of I. chamaeiris—usually come into bloom towards the end of April. By mid-May, Queen Flavia—a Caparne variety—should be in flower, and Yellow Hammer comes a little later.

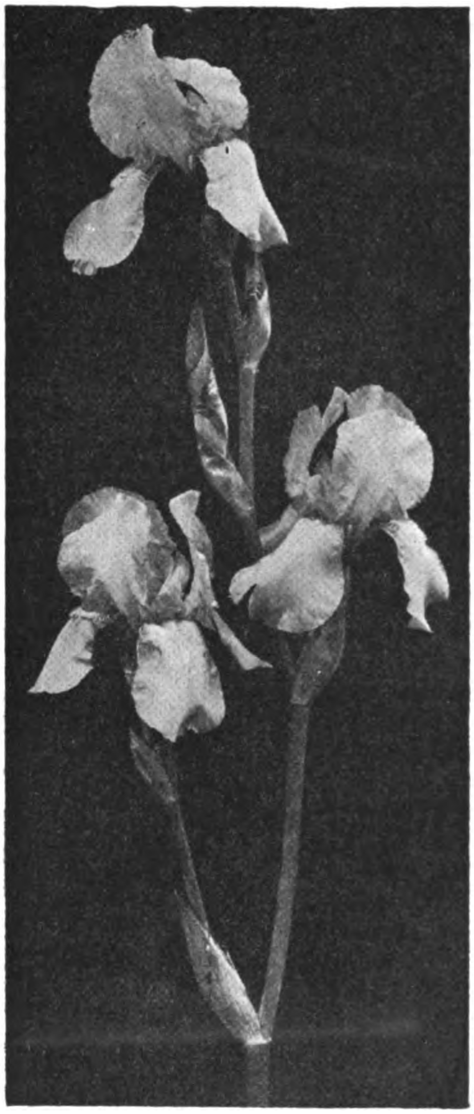


FIG. 225.—IRIS MARJORIE TINLEY.

It is when we come to the main June-flowering group of bearded Irises that we search in vain for an upstanding plant of good habit with yellow blooms of size and proportion — a yellow-flowered Dominion, in fact. For years Mrs. Neubronner stood alone almost in this group till the American Shekinah—first of the taller, hybrid yellow-flowered bearded Irises—made a new break. The upright French-raised Chasseur followed, and some ochracea seedlings, and then came Safrano (1922) and lastly, Amber, another of Dyke's Irises, which seems to hold the field. All these have their points, but none of them is comparable to the best of the purple-flowered hybrid varieties.

The Iris which has been named in memory of W. R. Dykes is one of those none too common plants which immediately take the eye and satisfy the critical sense. The habit is well-shown in the photograph (Fig. 223) of the only group of the variety at present in cultivation, and it suffices to say that the large, well-balanced flowers are borne on stocky stems about two-and-a-half feet high. The colour of standards and falls is much the same as that of Paeonia Mlokosewitchii—satiny and glistening—the falls netted about the middle with veining of rather deeper colour. The fine orange beard is all the more conspicuous because of the contrast between it and the paler petal tint. The flowers are fragrant, and in the two-year-old plants at present in cultivation, there are four to a stem; the flowers last for about three days. The sword-like leaves are about fifteen inches long, an inch broad, and glaucous. The season has not, so far, been ideal for the June-flowering group of Irises in general, and though on the whole they have done well, the cold, cheerless weather of May and the present month is doubtless responsible for a perceptible loss of stature, especially in such a wind-swept garden as that at Bobbingcourt; it is probable that Mr. Dykes's fine Iris will do better as the plants mature, and if not, it is already in the front rank.

Nothing is known of the parentage of the plant; all is conjecture, for Mr. Dykes himself did not know. It is probable that once again the bees have shown what they can do when left to themselves. *A. Grove.*

BEARDED IRISES.

Those who recollect the small flowered, dwarf-habited, and dull, almost nondescript coloured bearded Irises in cultivation some twenty years ago, cannot but feel somewhat amazed by the vast improvement in the newer varieties in size of bloom, and the stately spikes, from three-and-a-half feet to four-and-a-half feet tall. The comparative simple culture and hardiness of these Irises render them suitable for growing in any garden, large or small, where the soil is well drained and full sunshine can be given the plants.

The following are a few of the better and most distinct varieties noted at the recent Chelsea Show:—Mrs. Robert Emmett, which is undoubtedly the finest pure white variety; the flowers are exceedingly large, with broad, upright, snow-white standards, milk-white falls, a clear yellow beard, and orange-yellow lined base. The stout, upright stems are well branched and grow three-and-a-half feet tall. White Queen is one of the most decorative snow-white varieties of medium height, that is, not exceeding two feet tall. It is a good border variety. Of the frilled sorts, the variety Madame Chereau is still to be recommended on account of its free-flowering and stately habits. The standards are prettily incurved and delicately frilled; they are blue, as are the falls, on a pure white ground. Ma Cherie is similarly edged or frilled, but with blue. Both these Irises grow two-and-a-half feet tall.

One of the most showy and outstanding of Irises is a large pallida form named Marjorie Tinley (Fig. 225). The flowers are exceedingly well-formed and produced on freely-branched stems, from four feet to four-and-a-half feet tall. The standards are large and broad, prettily frilled and of a soft lavender-blue. The falls are large and broad, standing at right angles; they are coloured dark mauve, with a silvery shading and a conspicuous yellow beard. Duke of York is of similar habit and form as the preceding, but a self soft mauve-blue: this variety grows four feet tall.

The variety Mrs. Stafford, stands out conspicuously amongst the taller forms; the standards are violet-purple and prettily incurved. The falls are dark plum-purple, around a bronzy yellow beard, passing to a violet-purple. This Iris grows three-and-a-half feet tall.

A distinct Iris, of good form, is Souvenir de Madame Gaudichau, of French origin. The standards are violet purple, the falls dark, glossy violet-purple, the beard bronzy yellow. The stems grow three-and-a-half feet tall. Alcazar is one of the giants for the back row, growing three-and-a-half feet to four feet in height. It is a remarkably free-flowering variety, the stout stems bearing numerous large flowers with bluish violet standards, deep purple falls, and an orange beard. Lent A. Williamson is of American origin; it is a strong grower and free blooming. The standards are bright purple blue, the falls rich velvety purple, and the beard yellow. The height is three feet. Ambassadeur is a robust grower producing very large flowers. The standards are reddish violet, suffused with bronze, the falls velvety, reddish purple. Three-and-a-half feet.

Magnifica is a gigantic Iris of French origin bearing exceedingly large, well-formed flowers on stout stems which grow three-and-a-half feet tall. The standards are light violet-blue, the falls dark reddish violet, and the beard orange.

Of the delicate tinted rose shades, Mrs. Marion Cran stands top of the list, having stout, stately stems, four feet tall, bearing numerous flowers of a brilliant light rose and sweetly scented. For grace and beauty and free-flowering qualities the variety Lady Sackville is unexcelled. It bears large, well-formed flowers on branched stems, three feet tall. The standards are soft silvery blue, the falls violet-purple, and the large beard orange-yellow. This Iris is sweetly scented. Crimson Glow is free-flowering and of good form. The standards are prettily incurved, and both standards and falls are a uniform shade of crimson rose; it grows three-and-a-half-feet tall. For isolated positions and general effect the variety Lord Lambourne is one of the most showy of Irises, having stout, well-branched stems that bear numerous flowers. The standards are fawn suffused with rose and bronze; the falls rich madder crimson, conspicuously reticulated at the throat; three-and-a-half feet tall. George Yeld is unique in form and combination of colour; the standards are prettily incurved and coloured apricot suffused with rose; the falls are bright rose-crimson, with a buff picotee edge; three feet.

Other fine sorts include Mestor, Mrs. Cuthbertson, Ruby Perry, Mrs. H. F. Bowles, Olive Murrell, Mrs. Fred Stern and Lord of June. *W. L.*

THE IRIS GARDEN AT KEW.

THE Iris beds, near to the rock garden at Kew, seen against the deep green background of trees, presents a magnificent picture. It appeared that no matter from which angle I looked the beds seemed to present a similar picture. Perhaps the most striking view was that looking from the entrance of the Duke's Garden across the beds to Museum No. II.

Whilst looking upon each individual variety, I immediately thought that it was more lovely than the variety I had already selected. It seemed to me to be almost an impossibility to select the best varieties from such a mass of splendour, but I enumerate the following sorts which appealed to me most.

Squalens Section. — I.—Isoline, standard silvery rose flushed bronze, fall mauve shot with gold. II. Ambassadeur, soft ruby purple flushed with coppery bronze with silvery sheen. III. Eldorado, falls shot with mauve and purple, haft golden bronze.

Pallida Section.—I. Lord of June, massive flowers, standard Cambridge blue, fall rich violet blue; this, I think, is one of the best sorts in cultivation. II. Queen of May, soft rose pink; a very attractive Iris. III. Walner, standard soft blue, fall violet-blue.

Amoena Section.—I. Victorine, standard white-flaked purple; fall rich deep violet-purple. II. Mr. H. Darwin, snow white. This seems to be a very free-flowerer.

Variegata Section.—I. flavescens, standard canary yellow, fall cream. II. Fro, standard bright gamboge yellow, fall madder crimson with slight margin of golden yellow. III. Prince of Orange, standard rich golden orange, fall madder brown veined with golden orange.

Sibirica Section.—I. Snow Queen, a very lovely form with broad petals of snowy whiteness, with a rich golden blotch at the base of the petal. II. Emperor, a beautiful Japanese form, and one of the finest Siberian Irises in cultivation; the flowers are deep violet-blue.

It is well worth one's while to pay a special visit to the Iris Garden at Kew and enjoy the beauty thereof. *H. Bruins-Lich.*

GARDEN NOTES FROM S.W. SCOTLAND.

"As a tree for the climate of the British Isles, Davidia involucrata possesses two very valuable characteristics; it starts into growth late and finishes early, thus it escapes damage from late spring or from early autumn frosts."

Thus wrote Sir David Prain in the *Botanical Magazine* for 1912, tab. 8432, with perfect accuracy, no doubt, in respect of ninety per cent. of our seasons; but like other rules, this one has its exceptions, such as befel us on the nights of May 14 and 15 in the current year, when the air temperature fell to 27° Fahr. (the ground temperature was not recorded here). Davidia was one among many plants whereof the young growth was blackened, while Gaya (Plagianthus) Lyallii, though reputed as being more sensitive to cold) suffered not at all, notwithstanding that both varieties of this fine New Zealander—the glabrous and the downy—were dressed in fresh foliage.

The evil winter through which we have passed has told severely, though not fatally, on Olearia Colensoi and O. ilicifolia, and upon two or three out of many bushes of O. semidentata; but neither winter cold nor May frost interfered with the young growth on O. insignis, macrodonta, nitida or the other bushes of O. semidentata. Senecio Huntii, S. Hectori, S. Grayi and S. laxifolius have sustained no check; Styrax Obassia and S. Hemsleyanus have fared very ill, but S. japonicum remains proof against all vicissitudes of our climate. It is worth recording that, although Pieris japonica had accomplished a fine display of blossom before the frost in May destroyed all its young growth, the Chinese P. taiwanensis, which is so nearly akin to it, remained unhurt.

The wreck of young growth upon many species of Rhododendron is very distressing, R. argyrophyllum, R. campylocarpum, R. Hunnewellianum and R. Prattii being among the worst sufferers; but R. decorum, which is apt to lose many flower-buds in winter, and to get cut by spring frost, has proved absolutely immune on this occasion, and has not only been most profuse in bloom but has suffered no check in growth. The same may be reported of such other easy starters as R. Soulei, R. oreodoxa, R. adenogynum, and R. hamaetodes.

It sometimes happens that the pendent flower-buds of Tricuspidaria lanceolata, which are formed in autumn, get nipped by winter frost, and I fully expected that they would suffer during the past season, especially as on three occasions we had 14° of frost closely following on a downpour of rain. Strange to say, there never was a finer display of blossom on this Chilian subject than there is at this time of writing—June 1.

Lilies, including the fine form of L. centifolium, have escaped injury, except that here and there a stem of L. regale has its top damaged. Among herbaceous plants there has been a good deal of mischief, the fine crimson thryses of Saxifraga Delavayi—best of the Megasea section—being a sorry spectacle, while the leaves of several species of Rodgersia are completely blackened. In singular contrast stands a flowering spike of the Mexican Beshorneria yuccoides, five feet high, in its brilliant livery of emerald and carmine. Some of our native plants bear witness to the untimely cold, even the fronds of the Hart's-tongue and Male Ferns being scorched when not under trees.

On this occasion the west coast has endured a more severe visitation than the east coast. In south Ayrshire the Beech woods in the beautiful valleys of the Girvan and the Stinchar have had all their young foliage destroyed; the Ash had escaped. Only on one occasion do I remember that most prudent of forest trees to have been lured into leaf too soon for safety, when, on May 20, 1894, the mercury registered 20° of frost, blackening all the young foliage on the Ash trees, not only in Scotland, but in Hertfordshire, where I happened to be trout-fishing at the time.

Just as Rhododendron Souliei is shedding its pretty bells, its near relative, R. cyclium takes up the display. The family likeness is very strong, both belonging to the Campylocarpum series. The colour of R. cyclium is better than that of the other, the rose-pink not passing into white as the flowers open. R. pholidotum, of the Heliolepis series, is another June flowerer, bearing loose trusses of bloom resembling in effect those of the early-flowering R. glaucum; the latter, however, belongs to the Lepidotum series. *Herbert Maxwell, Monreith.*

FRUIT GARDEN.

APPLE DR. HARVEY OR WALTHAM ABBEY?

THE reference by your correspondent, Mr. J. W. Morton, in last week's issue (p. 428) to Apple Dr. Harvey, much interested me, for whilst I have grown and know Waltham Abbey well, I did not associate it with the variety Dr. Harvey.

I see that Bunyard, in *A Handbook of Fruits*, gives Dr. Harvey as a synonym, but Hogg, in *The Fruit Manual*, describes both Apples as distinct. If they are one and the same variety it seems that the name Dr. Harvey should have preference as being the older, for Hogg states that Dr. Harvey, from whom the variety was named, was Master of Trinity Hall, and that he died somewhere about 1630. It is thus one of the oldest English Apples; Hogg states that it was first mentioned by Parkinson as "a faire, greate, goodly Apple; and very well rellished."

With regard to Waltham Abbey, or as it is sometimes known, Waltham Abbey Seedling, this was raised by Mr. J. Barnard about 1810, at Waltham Abbey, Essex. The seed was obtained from a fruit of Golden Noble, and Hogg states that it is sometimes made synonymous with that variety, but it is quite distinct.

Again, the seasons of these two Apples, according to Hogg, are different, Dr. Harvey being in use from October until January, and Waltham Abbey Seedling from September to Christmas.

Waltham Abbey, as Mr. Morton states (p. 428), does well in some parts of Kent and is very successful on the chalk. It would be interesting to know if any of your correspondents could clear up the question as to whether Dr. Harvey and Waltham Abbey are distinct sorts or not. *T.*

VEGETABLE GARDEN.

A FEW UNCOMMON VEGETABLES.

DURING the last year or so Yams have been exhibited on more than one occasion in the Royal Horticultural Society's Hall, Westminster. The tubers should be treated in practically the same manner as Potatos; and after being wintered in a frost-proof shed should be sprouted in boxes and then planted in prepared trenches in April. It is advisable to give the twining growths some support, and this may easily be provided by the use of Pea-sticks. The tubers are generally boiled in the same manner as Potatos, or they may be washed and lightly scraped before baking them in a hot oven and then serving them with butter.

Oxalis tuberosa, if planted out in May and lifted in November, will grow well in light soil and furnish a nourishing dish. In Italy, where the tubers are much esteemed as a vegetable during the autumn and winter, they are placed in a covered frying-pan, seasoned with salt, pepper and butter, and then allowed to cook steadily in their own juice.

The annual influx of Americans into this country is slowly but steadily influencing our cooking, and as each year goes by more and more Turkey Wheat, or as it is sometimes known, Maize or Sweet Corn, is planted in our gardens. Early Dwarf is one of the best varieties the seeds of which may be sown thinly in gentle heat in March or April, the seedlings being eventually thinned so as to leave one to each pot. The plants are gradually hardened off and finally planted out in specially prepared trenches in a sunny position at the end of May. The young green cobs are selected before the seeds harden, and are cooked and served in much the same way as Asparagus.

Another very uncommon dish is made by cooking young shoots of Bambusa (Phyllostachys) pubescens. The shoots are removed from their hard, sheath-like covers and the edible parts sliced into small pieces, boiled for some hours in salted water, and then served with melted butter.

Nasturtiums are valuable not only for their dainty flowers but also for their seeds which, if pickled in vinegar when green, may be used for the same purpose as capers. The flavour of Nasturtium flowers and seeds resembles that of Cress, and they are often used for this reason for the garnishing of salads.

The value of the common Nettle as a vegetable should not be overlooked. The young shoots of Nettles may be cut, washed, dried, and then steamed for about twenty minutes before being served with butter or rich sauce. A dish of Nettles thus prepared is said by many to be superior to Spinach. The common Nettles found in this country are Untica urens and U. dioica, but a third species, U. pilulifera, grows well near Romney, Kent. *R. Ashcroft.*

LATE PEAS.

The final sowing of Peas should now be made in northern gardens, choosing first-early varieties, that is, varieties which mature in from twelve to fourteen weeks, so that pods may be available from mid-September onwards.

The ground for these late sowings should be in good condition, for in soil that is well enriched the plants will make strong and rapid growth in their early stages. If very dry weather should ensue care must be taken to ensure that they do not suffer from lack of moisture at the roots.

The method of making trenches and placing a quantity of well-rotted manure in the bottom before filling them again, is well-suited to late Peas, as the dung provides a deep, cool rooting-medium, which carries the newly germinated Peas safely through the usually hot, dry weather of June and July. *H.*

HOME CORRESPONDENCE.

"A Gardener!"—I would like to congratulate Mr. Auton on his excellent article on "Garden Expenses" (see p. 404). True economy is a matter of good organisation, and in a garden, as in business, good management is essential to good results. Mr. Auton rightly points out the necessity of attracting the best type of men into the gardening profession by raising the status of the gardener. The uninitiated may wonder how gardeners suffer from social ostracism, and what Mr. Auton means when he suggests that their status should be raised. This may, perhaps, be best explained by illustration :—Two boys, sons of parents of similar position, and with the same education, are about to commence their working career; the first, Smith, has no particular fancy for any calling, but as a vacancy occurs in the office of a local estate, he drops into it. The other boy, Brown, has a love for nature, and plant life in particular, consequently, he decides to adopt gardening as a profession After serving in various gardens in different parts of the country to gain a thorough knowledge of his profession, Brown is eventually appointed head gardener to the gentleman who employs Smith. The latter, in the meantime, has probably risen to the position of chief clerk, or may regard himself as a secretary. The employer is the first to make a social distinction between the two, for both in conversation and correspondence, he will refer to *Mr.* Smith at the office, and to Brown, the head gardener; his friends follow this lead, and although Brown is in no way dependent on them, they treat him as a servant, and distinctly lower in the social scale than Mr. Smith. When requiring essential supplies for garden use it is possible that Brown will have to order them through Mr. Smith, or obtain the latter's signature for the order. When Brown's men receive their wages it is probably from the hands of Mr. Smith. But when it comes to garden organisation (and often other matters as well) and its intricate problems, then Brown is the responsible person, and his is the master mind which keeps the garden in order with a due regard for economy, although his efforts are often hampered by the procrastinations of Mr. Smith. In local affairs Mr. Smith is received as an equal, but poor Brown is only tolerated according to his usefulness. Again, Brown may be travelling, and being a good conversationalist, enters into a discussion with a fellow passenger; the subject may be the scenery of the countryside, and Brown's knowledge naturally arouses the curiosity of the gentleman with whom he is talking, but should Brown reveal the fact that he is "a gardener," the conversation—which up to this time has been conducted on equal terms—becomes constrained, or the gentleman assumes a patronising air when he realises that he is talking to "a gardener." Is it surprising that many good men leave private gardening when an opportunity occurs, and that there is a shortage of really first-class gardeners? I have little sympathy with employers who complain that they have a dull or illiterate gardener, for they get that which, judging by their actions, they ask for. Can it be wondered that any intelligent gardener who has had to endure such petty snobbishness, should advise his sons to seek another calling and to shun that which (apart from its indignities) is a profession he himself loves? *Head Gardener.*

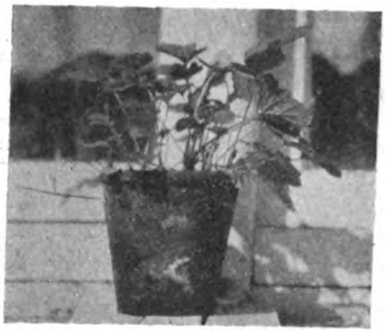


FIG. 226.—GERANIUM RAISED FROM SEEDS NEARLY FIFTY YEARS OLD.

Vitality of Seeds.—Your readers may be interested in a reproduction from the enclosed photograph which bears directly upon the interesting subject of the vitality of seeds. The Geraniums shown (Fig. 226) were raised from seeds recently found in the drawer of an old writing table, in a paper packet labelled "Kunoor, 1877," in the handwriting of an old aunt long since deceased. From the date appended it is evident that the seeds were gathered nearly fifty years ago in her garden at Oak Hill Grove, Surbiton, Surrey. The Kunoor Geranium was an old favourite of hers, and I believe the original stock was brought home from India. *R. M. H. Buckland, Maj.-Gen. (retired), The Locks, Hurstpierpoint, Sussex.*

Garden Expenses and Gardeners.—Mr. W. Auton's admirable article on "Garden Expenses" concludes with a seasonable reference to the gardener himself, and it is good to know that the writer regards gardening as a profession. All who are keen and love the work of garden planning and management should do everything in their power to maintain a high standard in the profession. The servitude of the Victorian era is being rapidly stamped out, and the genuine gardener, far from being regarded as a domestic servant, of some extra dense type, is looked up to. Respect for one's employers should always exist, but present-day employers do not expect more and most of them realise the value of a really good man. *Bruce Hewitt, Petersfield.*

SOCIETIES.

ROYAL HORTICULTURAL.

June 15 and 16.—Some previous exhibitions have been finer than the one held on these dates, but it was an occasion when lovers of Irises and Paeonies had a great time, as these flowers were exhibited extensively and in great variety. Other hardy flowers were presented in good condition, while Sweet Peas, Delphiniums, Carnations, and Orchids were other features of interest.

Orchid Committee.

Present:—Sir Jeremiah Colman, Bt. (in the Chair), Mr. Gurney Wilson (Hon. Sec.), Mr. C. J. Lucas, Mr. Fred J. Hanbury, Mr. H. T. Pitt, Mr. Sidney W. Flory, Mr. Arthur Dye, Mr. Fred K. Sander, Mr. H. G. Alexander, Mr. Charles H. Curtis, Mr. John C. Cowan, Mr. Henry H. Smith, Mr. T. Armstrong, and Mr. J. Wilson Potter.

AWARD OF MERIT.

Odontonia Nubia (Miltonia Charlesworthii × Odontoglossum Doreen).—A handsome hybrid of good size and form. The petals are heavily marked with ruby-purple on a whitish ground, the markings on the sepals being larger and somewhat paler; lip large and very Miltonia-like, white, with abundant small purple markings and a rich red-brown mask with a golden crest. Shown by Messrs. CHARLESWORTH AND Co.

BOTANICAL CERTIFICATE.

Dendrobium purpureum var. album.—A whitish flowered form of a somewhat rare species. The small and rather tubular flowers are produced in dense rosettes from the leafless pseudo-bulbs and are more interesting than beautiful. The habit of growth is very much like that of the stronger growing deciduous species. Shown by Messrs. SANDERS.

GROUPS.

Orchids were not particularly plentiful on this occasion nevertheless there were a few interesting exhibits.

Messrs. STUART LOW AND Co.'s exhibit contained the old and once popular Arpophyllum giganteum, Laelio-Cattleya Canhamiana, L.-C. Aphrodite, L.-C. Martinetti var. Vesuvius of very bright ruby and purple colouring; Brasso-Laelio-Cattleya Saundersii, Cattleya Mendelii alba, C. Mossiae var. Pintadeau and C. Mossiae var. Reineckiana. Other good things or interesting flowers were Angulocaste Youngii, Masdevallia calura, M. muscosa, Odontoglossum Williamsii and Brassavola tuberculata.

Messrs. CHARLESWORTH AND Co. exhibited a group of hybrid Odontoglossums flowering for the first time. The group attracted the Orchid specialists, who greatly admired these handsome developments in regard to new colours; all the flowers were of fine shape. O. Ascania, O. Camilla, O. Royal Ascot, O. Amabilicity, O. Regium and O. Italia were those which, among so many beautiful things, attracted our attention.

Sophro-Cattleya Doria var. citrina (Doris × aurea) with large handsome flowers of deep citron-yellow colour, with ruby-tipped lip, was the centre-piece of a small exhibit made by Messrs. BLACK AND FLORY; the group also included Miltonia Princess Elizabeth, M. Kennie var. Symphony of lovely shape, and Sophro-Cattleya Prince Shimadzu of rich colouring.

Very charming were the ornamental boxes of flowering plants of Cypripedium niveum shown in the foreground of Messrs. SANDERS' group, which contained also such good plants as the bright blue Bletia verecunda, Cochlioda Noezliana, the small Oncidium acrobotryum, Bulbophyllum Lobbii var. albanense, Dendrobium purpureum var. album with little rosettes of small whitish flowers, Dendrobium atroviolaceum and Odontoglossum Williamsianum.

In Messrs. COWAN AND Co.'s exhibit the plants were all set out independently of each other, and each was a fine example. A few of the leading subjects were Brasso-Laelio-Cattleya Jupiter, represented by two examples, Laelio-Cattleya San Juan, L.-C. Canhamiana alba, the old and graceful Dendrobium Devonianum, Cypripedium Curtisii var. Sanderae, the rarely seen Aerides virens, Odontoglossum crispum xanthotes, and the elegant Oncidium Wentworthianum.

A superb specimen of Miltonia vexillaria var. Snowflake was exhibited by Sir George Holford (gr. Mr. H. G. Alexander), Westonbirt, Tetbury (Cultural Commendation); this carried twenty-two spikes and a total of one-hundred-and-eleven dainty white flowers; the same exhibitor showed Odontoglossum White Admiral.

Floral Committee.

Section A.—*Present :* Mr. Henry B. May (in the Chair), Mr. A. Turner, Mr. J. F. McLeod, Mr. H. R. Darlington, Mrs. E. M. Wightman, Mr. H. J. Jones, Mr. Mark Fenwick, Mr. Donald Allan, Mr. J. M. Bridgeford, Lady Beatrix Stanley, Mr. W. Howe, Mr. W. H. Page, Mr. M. C. Allwood, Mr. A. Vasey, Mr. J. B. Riding, Mr. W. B. Gingell, Mr. J. T. West, Lady Helen Lindsay Smith, Mr. D. B. Crane, Mr. W. P. Thomson, Mr. G. W. Leak and Mr. D. Ingamells.

Section B.—Mr. G. W. Loder (in the Chair), Mr. W. J. Bean, Mr. Jas. Hudson, Mr. G. Reuthe, Mr. W. B. Cranfield, Mr. W. A. Bilney, Mr. Reginald Cory, Mr. R. D. Trotter, Mr. G. Yeld, Mr. L. R. Russell, Mr. A. Bedford, Mr. Clarence Elliott, Mr. T. Hay, Mr. F. G Preston, Mr. C. Williams, Mr. E. H. Wilding, Mr. W. G. Baker, Mr. R. C. Notcutt, Mr. Chas. T. Musgrave, Hon. H. D. McLaren and Sir William Lawrence.

Awards of Merit.

Allium Schubertii.—This is a robust, tall-growing species bearing a widely-spread head of small purplish flowers. Shown by Mr. Amos Perry.

Calceolaria J. Coutts.—A valuable pot plant for the conservatory and, probably, for the flower garden. It is a hybrid between C. integrifolia and C. cana. In habit and general characteristics it is most like C. integrifolia, but is rather more sturdy and the foliage has derived some of the attractive greyness from C. cana and the flowers have its pleasant perfume. The blooms are a trifle flatter and larger in the pouch than those of C. integrifolia, and are of a very pleasing bright canary-yellow colour. Shown by The Director, Royal Gardens, Kew.

Delphinium Violet Robinson.—A magnificent spike bearing the largest individual flowers of any Delphinium. The flowers are of a very dark blue colour with white centres. The flowers are well set on the spike and the buds are distinctly rounded. Shown by Messrs. Blackmore and Langdon.

Digitalis ferruginea rosea.—This is stated to be a seedling, but except in foliage is quite distinct from the species. In habit and general appearance it more nearly approximates Chelone barbata. The spikes are tall and graceful. The flowers are tubular, about an inch long, on fairly long stalks, and not congested as in the species. They are flushed with rose and yellowish inside. The stem and lanceolate leaves are glabrous. Shown by Messrs. B. Ladhams, Ltd.

Digitalis Lütz.—This is a true Foxglove in every particular. The spike is tall and well furnished with soft salmon-pink flowers. Shown by Sir William Lawrence, Bt.

Gypsophila Bristol Fairy.—A very vigorous perennial much like a glorified form of the double-flowered G. paniculata, though the foliage suggests the garden form monstrosa, and it is probably a cross between the two. Spreading panicles of double white flowers twice as large as those of G. paniculata fl. pl. were exhibited. Shown by Mr. W. Wells, Junr.

Iris Frances.—A graceful little variety of I. Delavayi type. The limbs are of metallic violet colour, while the falls are velvety-blue with golden lines at their bases. Shown by Mr. G. Yeld, Gerrards Cross.

Phyteuma comosum.—A splendid little plant of this Horned Rampion was shown, and the uncommon type of inflorescence attracted a deal of attention. The almost Holly-like leaves are stiff and coarsely toothed. The pale purplish flowers are borne on short stems in dense heads. The tubular corolla is inflated at the base and the filaments extend considerably. It is essentially a plant for the rock garden and thrives best in lime-rock. Shown by Mr. Clarence Elliott.

Primula microdonta apicola.—This is one of the uncommon Eastern Primroses collected by Capt. Kingdon Ward. The leaves are about the same size as those of the common Primrose and of a pleasant green colour. The pendulous flowers are borne on rather long, slender stalks and the stems and calyces are mealy. The individual flowers are nearly as large as those of the common Primrose but are cupped. They are of a rich violet-blue colour with yellow centres. Shown by Lady Aberconway, Bodnant, North Wales.

Rhododendron Norman Shaw.—A very handsome truss of large flowers which may well be described as being a rich pink-coloured R. decorum. The pips open widely and have attractively waved margins. Shown by Lionel de Rothschild, Esq., Exbury, Southampton.

Saxifraga Primulaize Salmon.—Under this name a pan of an uncommon Saxifrage was shown. It is of densely tufted habit and produces short-stemmed heads of reddish flowers. Shown by Messrs. M. Prichard and Son.

Other Novelties.

Gazania Vanity, a clear yellow form of the old favourite G. splendens was shown by Messrs. Maxwell and Beale. Capt. B. Symons-Jeune submitted a splendid plant of Saxifraga Tumbling Waters, which had already received an Award of Merit, but it did not gain the higher award. Hemerocallis Orb, shown by Mr. G. Yeld, is a good canary-yellow flowered variety which is also pleasantly scented. Halimium (syn. Cistus) libanotis, which is a useful yellow-flowered little shrub for the rock garden was shown by Sir Oscar Warburg.

Groups.

Delphiniums were particularly well shown by several growers. Messrs. Blackmore and Langdon filled a large space just inside the entrance with a magnificent collection which was characterised by long spikes of flowers of lovely colours. The chief were Edward Bromet, which is an improved Rev. E. Lascelles ; Phyllis, silvery lavender ; R. A. Pilkington, rich violet edged with dark blue ; Queen of Bath, azure blue ; Blue Boy, a robust spike of fine flowers ; Mrs. Townley Parker, Cambridge blue, and Lord Derby, deep rosy-mauve.

On an extensive floor space Mr. H. J. Jones had a well arranged collection of splendid Delphiniums. His exhibit included such valuable varieties as Edmondson, Glory, Joan, Rene Gilbert, Major Pat Beckett, ovidius and King of Delphiniums. The varieties Blue Queen, Blue Lagoon and P. Wiseman were well staged by Mr. T. Carlile.

Amongst the excellent Delphiniums shown by Mr. T. Bones were Blue Bird, Luxor, of dark blue, almost smoky colouring, Blue Darling and Mrs. Thos. Carlile, of lovely lavender colour.

Delphiniums were associated with Paeonies by Messrs. Kelway and Son, who showed Sir Alfred Keogh, Countess of Ilchester, Brilliance and other good sorts. Their single Paeonies included Rose of Silver, Philip H. Miller, deep pink; Anzac, rich ruby red; and Dorothy Daniels of soft pink shading. The double-flowered varieties were also of great merit and chief of these were Duchess of Somerset, pink ; Empress of India, white ; Kelway's Queen, beautiful blush shades and rubescens.

Messrs. R. H. Bath, Ltd., also showed Delphiniums and Paeonies. Amongst their double-flowered Paeonies were Baroness Schröder and Albatre, white with creamy centres ; Albert Crousse and Claire Dubois, good pinks ; M. Charles Leveque, satiny blush, and Edouard Andre, ruby. Paeonies of merit were associated with Delphiniums, Lupins, Irises, Geums and Kniphofias by Messrs. M. Prichard and Sons.

Under the clock Mr. G. R. Downer had two excellent collections of his well-known Lupins. The spikes were large, shapely and of bright, clear colours. In another part of the hall Mr. Clarence Elliott also showed admirable Lupins. Paeonies, Erigerons and Delphiniums of good varieties were displayed by Mr. G. W Miller.

In a collection of general herbaceous flowers Messrs. B. Ladhams, Ltd., had several vases of their varieties of Campanula persicifolia, bearing large flowers of good shades of blue. They also staged vases of Gaillardias, Heucheras, and Erigerons.

On the floor in the centre of the hall the Orpington Nurseries Co. had a large group of excellent bearded Irises. In addition to some desirable seedlings they showed Flaming Sword, Sindj Khat, Katherine Fryer, Zulu, Sir Michael, and Loreley. Messrs. Wallace and Co. also had valuable Bearded Irises, of which Asia, Lord of June, Prospero, Dora Longden, and Sweet Lavender were very charming.

Such good Irises as Ambassadeur, Rene Denis, Rhein Nixe, and Prospero were displayed by Messrs. Bunyard and Co. with Delphiniums and Paeonies. Of the last-named, La Perle, soft pink ; Glory of Somerset, medium pink ; Comte de Paris, deep pink ; and Madame Lebon, ruby, were very attractive. Iris sibirica varieties and Iris Wilsonii were grouped by Mr. Amos Perry with Primula sikkimensis, Aster Farreri, Brodiaea coccinea, various Alliums, and other uncommon flowers.

Iris Jacquesiana, I. Ambassadeur, I. Rhein Nixe, I. Memory and other tall-bearded varieties were associated with Lilium testaceum by Messrs. Waterer, Sons and Crisp, with Alpines in front of them. Paeonies, Cystus virgata, Helianthemums and Colutea cruenta were exhibited by Mr. R. C. Notcutt, while Messrs. W. H. Rogers and Son displayed Geum Dolly North of soft orange colour, Meconopsis aurantiaca plena, Violas, Dianthus neglectus, D. Clara and D. caesius Baker's variety. Mr. F. G. Wood had a tasteful group of Erigerons, Helianthemums, Armerias, Papavers and Gazania splendens.

Near the Orchid annexe Messrs. Barr and Sons staged many excellent bearded Irises such as Prosper Laugier, Juniata, Montezuma, Standard Bearer and Lord of June, with Iris variegata of rich colouring. They also showed Iris Xiphium varieties of considerable beauty, and Alliums, Campanulas and other seasonable border flowers.

In a low rockery Mr. W. Wells, Junr., displayed batches of Saxifrages, Primulas, Sedums and Funkias. Messrs. R. Tucker and Sons contributed Delphiniums, Verbascums and various alpines. Messrs. Maxwell and Beale set up a pleasant rock garden and the Misses Hopkins also showed alpines.

Irises, Delphiniums and other border flowers, with uncommon shrubs and alpines were arranged by Mr. G. Reuthe. Captain B. Symons-Jeune had a magnificent exhibit of his Saxifraga Tumbling Waters.

A collection of Roses, chiefly of the free flowering type, staged by the Rev. J. H. Pemberton included Nur Mahal, Una, Lady Curzon, Star of Persia and I. Zingari. Messrs. J. Cheal and Sons showed flowers of various types of Dahlias.

Sir Oscar Warburg, Boidier, Headley, Epsom (gr. Mr. B. Leach), exhibited a most comprehensive collection of Cituses in pots. These were representative of the various sections of species, and also included varieties and hybrids as well as allied genera, making a most valuable exhibit.

Near the entrance, Messrs. Dobbie and Co. displayed a magnificent collection of Sweet Peas. This was composed of a great number of first-rate varieties and illustrated splendid cultivation and tasteful arrangement. Of the many desirable varieties we particularly noted Camellia, white ; Magnet, pink shades ; Youth, Picotee-edged ; Ruby, Hawlmark Salmon Pink, Dignity, cream-pink ; Mary Pickford, of deeper shade ; and Patience, bright pink.

Messrs. W. J. Godfrey and Son set up an admirable collection of show and fancy Pelargoniums, of which the very best were Masterpiece, of rich colouring ; Joan, pink, with maroon blotch; Sweetness, pink, with cerise blotch; Devonian, rich crimson; and The Queen, pink, with crimson blotch. They also showed Campanula Pride of Exmouth and Oriental Poppies.

A meritorious collection of stove plants was staged by Messrs. L. R. Russell, Ltd., who displayed excellent plants of Codiaeums (Crotons), Dracaenas, Caladiums, Columnea gloriosa and other valuable tropical plants. Carnations in their accustomed quantity and quality were shown by Messrs. Allwood Bros., Messrs. Stuart Low and Co., and Mr. C. Engelmann.

Paeony Competition.

The first of the three Silver Cups presented to the Society by Mrs. Edward Harding was offered on this occasion for the best exhibit by an amateur of three flowers each of six varieties of Paeony. The R.H.S. offered a Silver-gilt Flora and a Silver Flora Medal respectively as second and third prizes. Competition was arranged to take place either on June 1 or June 15, according to the season, and it is unfortunate that the weather has been so unpropitious for outdoor flowers, for although six competed, the blooms generally were much below the average quality. The first prize was awarded to Mr. W. B. Cranfield, The Chase, Enfield. His collection included three single varieties in Fairy, Othello and Gloriosa. The others were Madame Durrofle, blush; a somewhat similar variety named Mon. C. Leveque, with rather bigger blooms, and E. G. Hill. The second prize was awarded to Frank Lloyd, Esq., Coombe House, Croydon (gr. Mr. M. E. Mills), who showed the varieties Mr. Chamberlain, Canari, alba superba (these blooms being exceedingly fine), Marquis of Lorne, festiva maxima and Philomel: third, Sir W. Lawrence, Bart., Burford Lodge, Dorking.

Fruit and Vegetable Committee.

Present: Mr. C. G. A. Nix (chairman), Mr. J. Cheal, Mr. A. W. Metcalfe, Mr. G. F. Tinley, Mr. A. Bullock, Mr. W. Poupart, Mr. A. N. Rawes, Mr. W. H. Divers, Mr. E. Beckett, Mr. A. H. Pearson, Mr. P. D. Tuckett, Mr. F. Jordan, Mr. H. V. Taylor and Mr. E. A. Bunyard.

There was no business of any kind for the consideration of this Committee.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.

The eighty-first anniversary festival dinner of this Institution was held at the Grocers' Hall, London, on Thursday, the 10th inst. The Duke of Portland presided, and there were present some two hundred friends and supporters of the charity, including the Rt. Hon. Lord Lambourne, Sir Edward and Lady Stern, Sir George and Lady Sutton, Mr. and Mrs. E. Sherwood, Mr. H. Gordon Selfridge, Mr. Leonard Sutton, Mr. and Mrs. W. T. Roberts (Master of the Worshipful Company of Gardeners), Mr. W. Corry, Mr. and Mrs. George Monro, Mr. and Mrs. H. W. Nutting, Mr. and Mrs. G. H. Barr, Mr. P. R. Barr, Mr. and Mrs. Ingamells, Mr. A. Dimmock, Mr. J. Hudson, Mr. N. F. Barnes, Mr. and Mrs. J. M. Bridgeford, Mr. and Mrs. A. Bedford, Mr. and Mrs. A. Bullock, Mr. and Mrs. E. T. Willis, Mr. and Mrs. E. A. Laxton, Mr. W. H. Cutbush, Mr. R. B. Ker and Mr. A. Dawkins.

The magnificent hall presented a fine spectacle decorated with the handsome plate of the Company, portraits of old city worthies on the walls, and banners hung from the gallery, and it was made even more beautiful by Mr. H. Miles with floral decorations, the gift of garden friends of the Institution.

After the usual loyal toasts had been given, the chairman gave the toast of the Gardeners' Royal Benevolent Institution. He said that in proposing the principal toast of the evening he had a very pleasant recollection of proposing a similar toast at the anniversary dinner of the Institution held twenty-six years ago. He considered himself very lucky to be alive to do so again, and he thanked Mr. Ingram for the kind invitation to take the chair that evening. Continuing he said: "I remember that when you placed me in this position twenty-six years ago, the toast was coupled with the honoured name of Mr. Harry J. Veitch, whose services to the cause of horticulture, —and they were very great—were subsequently recognised by the Knighthood which was conferred upon him in 1912. When Sir Harry Veitch died in 1924, this Institution lost one of its warmest and firmest friends.

Happily, this Institution has found that its supporters are like the runners in the ancient race, and that as they have one by one dropped out of the running, they have passed on the torch of benevolence to others, and so from the time of its foundation to the present day, the Institution has had an unfailing succession of generous supporters.

The experience of past years gives us hope for the future, and I trust that this excellent Institution will always receive such support as may be adequate to enable it to continue its truly beneficent work.

From the outset, the Institution has had Royal patronage, and since the last annual festival it has had to lament, along with the whole nation, the loss of one of its Royal Patronesses. I need not say, I think, that I allude to Her late Majesty, Queen Alexandra, whose kindness of heart led her to associate herself, her great name and her gracious influence with a vast number of charitable and benevolent institutions. I am sure that we all rejoice that Queen Alexandra's grandson, H.R.H. The Prince of Wales, is the President of the Institution.

In 1900, when I last had the honour of presiding over the Festival Dinner, I said that I was a believer in heredity, and that I was sorry that I could not trace my ancestry to anyone who excelled in gardening.

In this, however, I now rejoice to know that I was very much in the wrong, for, from what I have since learned, I fear that the statement I made did some of them a rather grave injustice. As a matter of fact, some of my ancestors were certainly ardent and skilled lovers of gardens and gardening. One of them, the Earl of Portland, the trusted friend of King William III, constructed an elaborate garden at Zorgvliet, near The Hague, and when the Earl came to England, he was appointed Superintendent of the King's Gardens, so I suppose he had something to do with Hampton Court. His great grandson, my great-grandfather, besides being twice Prime Minister, was a very keen horticulturist. He had for gardener at Welbeck one William Speechly, who was a man of some reputation in his day and generation, for in 1806 he won the Medal awarded by the Board of Agriculture for the culture of spring Wheat; and he is, I believe, still remembered as the author of treatises on the culture of the vine and the Pine-apple, and on Rural Domestic Economy.

Knowing these facts about my ancestors, I am not surprised that I have some love for gardens, a love that was greatly fostered by my wife's late mother, who converted some ordinary fields at Walmsgate into a garden of unusual variety and charm.

I am very glad, indeed, once again to take part in this Festival, which has for its object the raising of funds to provide annuities for practical gardeners and horticulturists who, by reason of old age or physical disabilities, are no longer able to follow their calling.

The annuities are given to some two-hundred-and-fifty aged gardeners and horticulturists and their widows, and there are now forty applicants on the waiting list, some paralysed, some blind, and some afflicted in other ways. In addition to the annuitants, some sixty horticulturists who were in urgent need last year received temporary assistance from two special funds, namely the Victorian Era Fund and the Good Samaritan Fund. To maintain the work, about £5,500 is required annually, towards which the assured income is about £1,200, this Festival Dinner being held in the hope of obtaining the money necessary to make up the deficiency. The object seems to me most praiseworthy, and it is a great pleasure to me to render what help I can to further it.

I wish the institution the utmost prosperity, and I now ask you to drink to the Success of the Gardeners' Royal Benevolent Institution, coupled with the name of Edward Sherwood, Esq., J.P., who has kindly taken the place of the late Sir Harry Veitch as Treasurer.

The Treasurer, Mr. E. Sherwood, responded. He said that it was the first year he had held the position of Treasurer, an office Sir Harry Veitch filled with such conspicuous success for fifty years. Since Sir Harry Veitch's death, Mr. Leonard Sutton had held the combined offices of Treasurer and Chairman of Committee, but it was Sir Harry's wish that he, Mr. Sherwood, should take the office of Treasurer. He thanked the Duke of Portland on behalf of the Executive for taking the chair, and said many would remember the former occasion when His Grace occupied the same position, for it was on the evening when London heard the news of the relief of Mafeking. The Chairman had stated that the Institution required an income of £5,000 annually in order to provide pensions for two-hundred-and-fifty annuitants: in addition, money was required for the Victorian Era Fund and the Good Samaritan Fund. The assured income is only £1,200, and for the rest the Committee has to rely on these annual festival dinners, and the contributions from the Auxiliaries. These latter, he said, were doing good work, and the raising of money by means of throwing gardens open to the public at a small fee in aid of the charity was a very valuable source of income, and he recommended this means of helping the Institution, to others. In the death of Queen Alexandra they had lost not only a Royal patron, but one who supported the Institution for very many years by her purse, and she allocated from Queen Alexandra Day every year a certain sum to the charity.

The toast of the visitors was proposed by Mr. George Monro, who said these dinners gave them the opportunity of meeting old friends and making new ones. The dinner also gave an opportunity for the new-comers to learn the reason of the Gardeners' Royal Benevolent Institution, and he was certain that they would like to join in the work of helping necessitous gardeners and the widows of gardeners in their declining years. Mr. Monro said that most of those present had enjoyed the beautiful flowers, etc., at Chelsea Show, and it must be remembered that we are indebted to gardeners for the beauty seen there and we should not forget them when they were in need.

Mr. Monro said he was pleased to see Lord Lambourne present, and he especially coupled the toast with the names of Mr. Gordon Selfridge and Mr. W. T. Roberts, Master of the Worshipful Company of Gardeners.

Mr. Gordon Selfridge stated that it was a great privilege to be present on such an occasion in one of these beautiful old City halls. Flowers were, in his opinion, included amongst the four most beautiful things on the earth. Tourists from abroad were always impressed with the love of flowers in this country, for flowers could be seen in every cottage and home in Great Britain. Mr. W. T. Roberts also replied on behalf of the visitors.

The health of the Chairman was proposed by the Rt. Hon. Lord Lambourne, President of the Royal Horticultural Society. He made numerous references to his long association with the Duke of Portland, and humorously referred to the youthful ideal of His Grace to own a Derby winner, and his own ideal to become president of the Royal Horticultural Society, ideals which have materialised in both cases. Lord Lambourne's racy and humorous observations appealed greatly to the company, and his speech was not the least enjoyable part of the proceedings.

After the Chairman's response to the toast of his health, the Secretary, Mr. G. Ingram, announced that the total sum contributed during the evening amounted to £3,000, including fifty-two guineas from the Chairman; one hundred guineas each from Messrs. Rothschild and Sons and Mr. Leonard Sutton; £104 from Mr. Chas. H. Cook; £100 each from Messrs. Hurst and Son and an anonymous contributor;

£78 from A. J. Wood, Esq.; £52 10s. 0d. from the Royal Horticultural Society; £50 from Mr. W. Auton; £40 from Mr. C. H. Curtis, including twenty-five guineas from L. Bradbury, Esq., and £5 5s. 0d. from *The Gardeners' Chronicle*; £36 from Mr. W. E. Wallace; £34 from Mr. H. G. Alexander; £26 5s. 0d. each from Messrs. Waterer, Sons and Crisp, Mr. W. L. Corry, and Mr. H. Gordon Selfridge; £25 each from Sir George Sutton, Mr. F. J. Chittenden, Mr. H. B. Piper, Mr. Thomas H. Cook, Major Churcher, and Mr. R. W. Wallace; £23 from Mr. S. J. Martin; £21 from Sir Edward Stern; £17 17s. 0d. from Mr. B. Crisp; £16 16s. 0d. from Mr. T. Finch; £13 13s. 0d. from Mr. A Bullock; ten guineas each from Sir J. Smith Young, Mr. S. M. Segar, Mr. John Cull, Mr. W. J. Jefferies, Messrs. G. Bunyard and Co., Mr. E. Beckett, Mr. E. L. Laxton, Mr. E. Harriss, Messrs. Protheroe and Morris, Messrs. Barr and Sons, Capt. Noel Sutton, and Mr. E. T. Willis. Major E. G. Monro's list amounted to £728, including donations of £25 each from himself and Mr. George Monro; ten guineas each from Mr. J. P. Rochford, Mr. A. Stevens, Mr. E. Stevens, Mr. T. J. Poupart, and Mr. A. Watkins. Mr. John Collingridge's list totalled £200, and included contributions of ten guineas each from Mr. M. Larsen, Mr. J. Collingridge, Mr. B. G. Broome, Messrs. Parsons and Co., Messrs. J. Collingridge and Co., Ltd., Mr. H. E. Honnor, Mr. H. Miles, Messrs. Slaymaker and Co., and Messrs. W. Duncan Tucker and Co.

GLASGOW AND WEST OF SCOTLAND.

On the occasion of the first of the summer outings of the Glasgow and West of Scotland Horticultural Society, over two hundred members visited Ross Hall, Crookston, the residence of Sir Frederick Lobnitz.

The estate extends over an area of twelve acres, and was laid out some fifty years ago by Mr. Cowan. The mansion house is beautifully. situated amid richly wooded grounds with an expansive lawn in front which slopes down to a lake and verdure-clad island. Nearby, the River Cart follows a winding course, and adjoining its banks there is an elaborate scheme of rockwork containing a choice collection of alpine and other plants.

Accompanied by Mr. Sharp, head gardener, the company first visited the range of glass-houses where a fine group of Messrs. Sutton's strain of Calceolaria and a collection of Streptocarpus were the outstanding feature of the floral display. The first houses contained specimens of Rivers' Early Peach carrying fruits in ripe condition, and a Banana also in fruit attracted attention. No fewer than nine varieties of Grapes are grown, viz., Lady Downes, Foster's Seedling, Alicante, Lady Hutt, Black Hamburgh, Golden Queen, Alnwick Seedling, Mrs. Pearson and Muscat of Alexandra.

Proceeding to the beauty spots, which are numerous and varied, we noticed Veronicas, Gentians, Aquilegias, pretty edgings of Viola cornuta and prominent among the Cistus family were examples of C. purpureus, C. cyprius, C. formosus, C. florentinus, C. celticus and C. algavense, while Erica carnea and its numerous hybrids were just out of bloom. On the way to the grotto and cave a dripping well with moss and lichen-covered walls accentuated the beauty of the picturesque surroundings. The winding stone paths led the company past brilliant groups of Primula in varied forms which seemed to be at home in cool shade at the base of huge stone erections. Some of the sorts carried masses of flower spikes two to three feet high, and among the best were P. Cockburniana, P. pulverulenta, P. japonica, P. Bulleyana, P. sikkimensis, P. Red Hugh, P. Veitchii. There was a good representation of the different Saxifrages, while Sempervivum arachnoideum on the rock faces was in exceptionally good health. The collection of alpines in flower included Incarvillea, Lithospermum in variety, Onosma taurica, Dodecatheons and various Brooms.

A well-formed avenue of Lime trees led the visitors to a grand specimen of the common Beech, which is about two hundred years old.

Altogether the members spent a profitable afternoon, and the large attendance testified to the popularity of those functions.

GRAND YORKSHIRE FLOWER SHOW AND GALA.

Although bad weather preceded this show the opening day was fine, but not fine enough to dry up the mud created by the wet weather and the traffic incidental to a great exhibition. This is the sixty-fourth year of the York Gala, and the second year in which the show has been held at the fine open space outside the city walls, known as the Knavesmire. In this public park there is far more space than in the old site at Bootham Park, on the other side of the city.

We are glad to see that the city authorities are continuing their interest in this annual horticultural function, and the veteran Mr. C. Hodgson remains on the executive. Mr. G. Johnson, the Chairman of the Floral Committee, and Mr. Anderson, the Secretary, are capable officials who spare no efforts to maintain the high standard of horticulture for which the York Show is justly famous.

The exhibition held on June 16, 17 and 18 was one of the best held in our experience of over thirty years, but the character of the exhibits has altered considerably during that long period. No longer is the York show famous for its huge Palms, big specimen stove and greenhouse plants, and its huge, trained Pelargoniums, while the former displays of splendidly-grown indoor fruits are not seen there now-a-days. Hardy flowers are now the outstanding feature of York Gala and these are displayed in fine style and bewildering variety. In bygone days Orchids were rarely shown, now they combine to make a distinct section. Roses were always a feature, weather and season permitting, and they were fairly well shown on this occasion. Instead of the stove plants there are now Rock Gardens and big competitive displays of hardy flowers. The decorative groups of flowering and foliage plants remain and are a great attraction alike to gardeners and the general public.

Three huge marquees were well filled with exhibits and although competition is not quite so keen as in former days it was well sustained, while the trade displays were wonderfully good and would of themselves have constituted a great show. Messrs. R. Bolton and Son's display of Sweet Peas was the outstanding individual contribution, but Messrs. Sutton and Sons, Mr. C. Engelmann, Messrs. Allwood Brothers, Messrs. T. Rivers and Son, and Messrs. Backhouse, each had splendid displays of their specialities.

We congratulate the York Gala authorities upon their continued success, their kindly treatment of all exhibitors, their courtesy to the press and their generous hospitality to all immediately concerned with the show.

Orchids.

Although Orchids were well shown we have seen finer displays in former years.

The best table of Orchids, twelve feet by five feet, was the one submitted by Messrs. Jas. Cypher and Sons, Cheltenham, whose bright arrangement included select Cypripediums, Cattleyas, Miltonias, Epidendrums, Aerides, Laelio-Cattleyas and Thunias: a third prize was awarded to Messrs. A. J. Keeling and Son.

For a dozen Orchids Messrs J. Cypher and Sons led with, among others, excellent examples of Laelio-Cattleya Canhamiana, L-C. Canhamiana var. Regina, L-C. Aphrodite, Brasso-Cattleya Ilene, B-C. Triune, Cypripedium callosum Sanderae, C. Lawrenceanum, Laelia Pecavia and Thunia Marshalliana. Messrs. A. J. Keeling and Son, third. Messrs. J. Cypher and Sons were also first prize winners in the class for six Orchids, showing Laelio-Cattleya Canhamiana var. The King, L-C. Wiganiana, L-C. Aphrodite, Dendrobium chrysotoxum and Thunia Marshalliana. Messrs. A. J. Keeling and Son had the best three Orchids, showing good plants of Cattleya Dupreana var. excelsa, Odontioda Faustina and Odontoglossum Amethyst var. Perfecta. The same competitors led in the class for a single specimen Orchid with Odontioda Queen Mary var. Oriflamme, carrying a pair of good spikes; second, Messrs. J. Cypher and Sons, with Laelio-Cattleya Wiganiana.

Groups and Plants.

Several classes are provided for groups and the principal one is for a display of plants, in or out of bloom, arranged for effect on a space of 300 square feet, facing all ways. The premier award of £20 was won by Mr. T. M. Petch, Highfield Nurseries, Bradford, who had a graceful exhibit with an arch of Asparagus Sprengeri and Clarkias as its central feature. Codiaeums, Liliums, Nandina domestica, Cattleyas and two specimens of Dracaena deremensis were disposed to advantage in the body of the group. The second award fell to Mr. W. Holmes, Chesterfield, for a bright contribution in which Clarkias and Codiaeums figured extensively, but which was lacking in finish in the foreground.

Messrs. James Cypher and Sons won first prize for a collection of plants arranged for effect on a space sixteen feet by six feet and they presented a very attractive group wherein Palms, Cattleyas, Laelio-Cattleyas, Kalanchoes, Miltonias, Anthuriums, and well-grown Codiaeums and Dracaenas were pleasingly arranged with an edging of freely-berried plants of Nertera depressa. Second prize was won by Mr. W. Holmes who had excellent Codiaeums and good examples of Cattleya Harrisonae.

In a class somewhat similar to the last, but with a space of twelve feet by six feet allowed, the exhibits were not of special merit and the prizes were awarded in order of merit to Mr. W. Holmes, A. S. Rowntree, Esq. (gr. Mr. J. Armes), Chalfont, York, and S. Leethem, Esq., (gr. Mr. G. Shill), Elm Bank, York.

Three groups of tuberous Begonias were staged, each on an oval, ground space not exceeding one hundred square feet. Messrs. Blackmore and Langdon won the premier award quite easily with finely grown plants and splendid blooms of Lord Lambourne, yellow; Mrs. Peter Blair, white; Lady Long, apricot; Hilda Langdon, pink and the drooping Mollie, a cascade of dainty white flowers; second Messrs. Padgett and Watson, Low Ousegate, York; third, Mr. J. E. Skaife, Heworth, York.

A. E. Hewett, Esq., St. George's Place, York, showed the finest set of eight plants of distinct varieties of tuberous Begonias, and he submitted well-grown specimens carrying big blooms; second, R. B. Beverley, Esq. (gr. Mr. S. Haigh), Cleveland, Clifton, York. Capt. J. Fielden (gr. Mr. L. Robson), Grimston Park, Tadcaster, led for eight Calceolarias, showing capital specimens of good varieties: second, A. E. Hewett, Esq.; third, Mr. W. Watson, The Museum, York.

Roses.

Roses were not particularly good, but considering the season they were shown somewhat extensively.

Mr. Elisha J. Hicks, Twyford, shared the leading award with Mr. Prince for a collection of Roses arranged on a table space 9 feet by 4 feet, and he showed a fine lot of blooms, some of his best strains being those of Souv. de Claudius Pernet, Mdme. Herriot, Emma Wright, Independence Day, and Mrs. H. Stevens. Mr. George Prince's exhibit contained bold displays of the fine new Lady Sylvia, Allan Chandler, Lucy Colvin and Irish Fireflame.

For a display of Roses arranged on a ground space 6 feet by 4 feet Mr. E. J. Hicks led with fine pillars of blooms of Shot Silk, Mrs. H. Stevens, Mdme. Herriot, Richmond and the old Mdme. Abel Carriere. For seventy-two blooms in not fewer than thirty-six varieties. Mr. Elisha J. Hicks won with a very fair set in which some of the best flowers were of Lord Charlemont, Mabel Morse, Shot Silk, Padre, Mrs. Foley Hobbs, and Admiration; second, Mr. George Prince whose best examples were Mrs. Foley Hobbs, Constance, Hoosier Beauty, Lady Roundway, and Mrs. H. Stevens. Mr. E. J. **Hicks** led for four dozen Roses in not fewer than two dozen varieties and in his set we noticed good examples of Shot Silk, Mrs. Sawday, Lord Charlemont and Golden Ophelia; second, Mr. **George Prince**. Mr. **George Burch**, Peterborough, showed the best twenty-four Roses; Mr. E. J. **Hicks**, coming second. Mr. **Hicks** was, however, first again in the class for eighteen varieties, with Mr. G. **Prince** second. Mr. W. **Hutchinson**, Kirbymoorside, led for twelve blooms, the second prize going to Mr. G. W. **Reader**, Naburn Ferry, York.

In the open class for twelve blooms Mrs. G. W. **Reader** won the first place and Mr. E. J. **Hicks** and Mr. G. **Prince** had to be content with second and third prizes respectively.

Hardy Flowers and Rock Gardens.

The large groups of hardy flowers constituted the most colourful part of the Show.

The leading class was for a collection of hardy perennials (Roses excluded) arranged in a natural manner on a ground space not exceeding 350 square feet. The four exhibits provided a blaze of colour, and although some criticism might be offered concerning the "natural manner" of arrangement, no one could quarrel with the quality and beauty of the displays. Messrs. **Bees, Ltd.**, Liverpool, won the first prize with a grand group to which a grass edging gave a pleasing finish. They relied chiefly on noble spikes of Delphiniums rising above a fine selection of Paeonies, but Irises, Oriental and Iceland Poppies, Primula Beesiana, Gaillardia Robin Hood and Heucheras were equally good. Messrs. **Harkness and Sons** won second prize with a brilliant display of Paeonies, Delphiniums, Lupins, Poppies, Heucheras, Irises and Phloxes; third, Messrs. W. **Artindale and Son**, Sheffield, whose Delphiniums and Eremurus were conspicuous; fourth, Messrs. **Gibson and Co.**

Messrs. **Bees** were equally successful in a smaller class for hardy flowers where the space allowed was eighteen feet by seven feet. Here also they set up a very bold exhibit of seasonable border flowers and finished it off with a grass edging; second, Messrs. W. **Artindale and Son**; third, Messrs. **Harkness and Sons**.

In an amateur's class Mr. R. **Kettlewell**, Exelby, Bedale, had the best dozen bunches of hardy flowers, in which Heuchera splendens was especially good; second, Mr. W. **Hutchinson**; third, Mrs. **Millington**, Burton Lane, York. In the open class for twelve bunches of hardy flowers the awards were made in order of merit to Messrs. **Bees**, Mr. W. **Hutchinson**, Mr. **Kettlewell** and Messrs. G. **Longster and Sons**, Malton.

The groups of Lupins made a fine show, each occupying a ground space of one hundred square feet. Messrs. **Harkness and Sons** won first prize with grand spikes of flowers chiefly of soft pink and yellow shades, representing a fine strain; Messrs. G. **Gibson and Co.**, and Mr. G. **Russell**, secured the remaining awards.

The rock gardens were not good and unfortunately, Mr. J. W. **Winn** was disqualified as he had inadvertently placed some cut flowers in his exhibit. No first prize was awarded, the second prize going to Mr. P. **Gardner**, Wharfedale Nurseries, Pool, Leeds, and third to Mr. S. **Pickering**.

The specification for the class for an "ornamental rock work" needs to be re-cast as it is badly worded. The space allowed here was thirty feet by twelve feet, and Mr. S. **Pickering** obtained the chief award for a pleasant arrangement with a long pool of water in front of rock work. Bamboos and Maples formed a suitable background for the drifts of Violas, Primulas, dwarf Campanulas, Sedums, etc.; second, Mr. P. **Gardner**; third, Mr. S. **Gardner**.

Floral Designs.

Competition was keen in the class for an epergne suitable for the decoration of a dining table, and here Messrs. **Charles E. Simpson, Ltd.**, were awarded the chief prize for a "warm" exhibit of orange-coloured Sweet Peas and Columbines; second, Mr. S. **Warren**, with an arrangement of Sweet Peas, Roses and Miltonias; third, Mr. F. H. **Ward**, with a pretty exhibit of blush Carnations and small sprays of Nepeta Mussinii.

Mr. F. H. **Ward** showed the best hand-basket of cut flowers, using blush-pink Carnations; Messrs. **Charles E. Simpson**, second, with Carnation Laddie. In the "Orchids Excluded" class for a hand-basket of flowers, Messrs. **Charles E. Simpson** led with an effective design in mauve Sweet Peas and yellow Richardias; second, Mr. F. H. **Ward**, with pink Carnations; third, H. G. **Tunstill**, Esq. (gr. Mr. W. Richardson) Ousegate, York, with Irises.

Messrs. **Charles E. Simpson** won first prize for a bowl of Roses with lovely blooms of a yellow variety; second, Mr. F. H. **Ward**, and third, Mr. G. **Burch**, both using Ophelia. For a bowl of any kinds of flowers, Mr. F. H. **Ward** led with crimson and pink Carnations; second, Messrs. **Charles E. Simpson**; third, Mr. S. **Warren**, Darwen.

Messrs. **Charles E. Simpson** led for a bridesmaid's bouquet with a charming design in blush Carnations; second, Messrs. **Backhouse**, with blush Carnations; third, Mr. F. H. **Ward**, with small blush Carnations. For a pair of hand bouquets Messrs. **Padgett and Watson** secured the leading award with designs in Carnations and Roses respectively; second, Mr. F. H. **Ward**, also with Carnations and Roses. Pale pink Carnations were used successfully by Mr. F. H. **Ward** in the class for one hand-bouquet; Messrs. **Padgett and Watson** coming second with coloured Odontoglossums, and Messrs. **Charles E. Simpson**, third, with a combination of pale yellow and heliotrope Carnations.

Four competitors came forward in the class for a dining table decoration of flowers and fruits These were attractive, and Mr. S. **Warren** won first prize with a dainty arrangement of yellow Roses Sweet Peas and dark Maple foliage, over dishes of Oranges, Grapes, Cherries, Melons, and Pineapples; second, Mr. F. H. **Ward**, who used Carnations and Nepeta Mussinii; third, Messrs. **Charles E. Simpson**, with Sweet Peas and sprays of Francoa romosa.

Awards of Merit.

Carnation Pallete.—A large, fancy variety with cream and orange colouring.

Carnation Zorro.—Another large-flowered perpetual-flowering variety: colour heliotrope and red. Both these were shown by Mr. C. **Engelmann**.

Sweet Pea Colorado.—A handsome, deep and rich orange-coloured variety. Shown by Mr. **Robert Bolton**.

Gypsophila Bristol Fairy.—A dainty, double, white variety. Shown by Mr. W. **Wells**, junr. Merstham.

Rose Lady Sylvia.—A lovely, deep pink variety of the Ophelia type; previously described in these pages. Shown by Mr. **George Prince**.

Delphinium Rose Marie.—This variety has tall spikes of large, deep indigo-blue flowers. Shown by Messrs. **Hewett, Ltd.**

Pyrethrum Mrs. J. J. Norfolk.—This is a great improvement on the well-known variety Queen Mary, as it has flowers of finer form, greater doubleness and richer pink colour. Shown by Mr. J. J. **Norfolk**, Forest Moor, Knaresborough.

Medal Awards.

The following awards were made to trade and other honorary exhibits.—

Large Gold Medal.—To Messrs. **Bolton and Son**, for Sweet Peas; to Messrs. T. **Rivers and Son**, for fruit trees in pots; to Mr. C. **Engelmann** for Carnations; to Messrs. **Allwood Brothers**, for Carnations and varieties of Dianthus Allwoodii; to Messrs. **Backhouse, Ltd.**, for rock and water garden; and to Messrs. **Sutton and Sons**, for Sweet Peas.

Gold Medal.—To Messrs. **Toogoods**, for flowers and vegetables; to Messrs. J. **Peed and Sons**, for Gloxinias, Streptocarpus and other stove and greenhouse plants; to Messrs. **Kent and Brydon**, for hardy flowers and formal garden; to Messrs. W. H. **Simpson**, for Antirrhinums and Lupins; and to the **Horticultural Department of the Leeds University**, for a most interesting educational exhibit.

Silver-Gilt Medal.—To Mr. W. **Wells**, junr., for hardy flowers; to Messrs. E. **Webb and Sons** for hardy and other flowers; and to Messrs. C. E. **Simpson** for hardy flowers.

Silver Medal.—To Messrs. J. **Kelway and Sons**; to Messrs. **Blackmore and Langdon**; to Mr. **James Douglas**; to Messrs. **Hewett, Ltd.**; to Messrs. **Lowe and Gibson**; to Mr. R. L. **Roger**; to Messrs. **Maxwell and Beale**; to Mr. **Arthur Todd**; to Messrs. **Bakers, Ltd.**, and to Mr. **Maurice Prichard**.

MORAY FIELD CLUB.

Morayland may justly be described as an El Dorado for the botanist and the horticulturist, for nowhere in Scotland can be found more beautiful gardens and finer colourings than in this fair county, well named the "Garden of Scotland." That the members of the Moray Field Club appreciate their situation may be gathered from the fine attendances at the various outings. The latest was to Lesmurdie, a beautiful estate owned by Colonel W. J. Johnston, C.B.E., at whose kind invitation the members spent a most delightful day. Led by the Rev. George Birnie, Speymouth, the President, Mr. J. J. Burgess, Mr. Dyke, the secretary, and Mr. J. Ames, lecturer on horticulture in connection with the Aberdeen and North of Scotland College of Agriculture, the party was received at Lesmurdia by Mr. Alexander Smart, the head gardener, who expressed his regret that Colonel Johnston was not able to be present owing to an important prior engagement.

Mr. Smart first took the visitors through the gardens, which look their very best in early summer. The fine show of Apple, Pear and Cherry blossom was much admired. The conservatory, with its display of Cinerarias, Primulas, Calceolarias, Schizanthus, Azaleas and Roses greatly impressed the visitors as did the Orchid house with its exquisite specimens, the Ferns, Coleuses and Stephanotis. A large new greenhouse, containing nearly two hundred Tomatos, proved very interesting. The company then proceeded to the shrubbery and the rock garden, the latter formed some two years ago. Here were found in rich profusion Rhododendrons of all shades, Azaleas, Andromedas, Heaths, the Snowy Mespilus, a fine Crataegus, various Anemones, Saxifrages, alpine Phloxes, the American Cowslip (Dodecatheon), masses of scarlet Rock Roses, white, pink and yellow Gromwells, Maples, with finely tinted foliage, Alyssum in dense golden masses, curious Barberries and the peculiar Aralia spinosa known as the Devil's Walking-stick. The rock garden proved indeed a great feast of pleasure to the visitors, the helpful explanations of Mr. Smart adding greatly to their enjoyment.

Thence the company proceeded along a beautiful path fringed with rare varieties of Daffodils relieved by Grape Hyacinths. A greatly admired item was a superb arch of pink Clematis, which leads to the gardens on the west of the mansion. In these gardens were seen many things of great interest to the horticulturist. These included the celebrated cork-winged Spindle-tree and the curious graft hybrid Cytisus Adamii. Around the mansion were seen massive Magnolias, dainty Clematis, several uncommon Barberries in flower, and the crimson blossoms of Cydonia japonica. A visit to the wild garden, formerly a marshy piece of land, but now well-drained, concluded a perfect day.

The proceedings ended with expressions of sincere gratitude to Colonel Johnston and his worthy head gardener, Mr. Smart, for the great enjoyment and profit they had extended to the club on this occasion.

READING AND DISTRICT GARDENERS'.

FAVOURED by fine weather, an exceedingly pleasant and interesting time was spent by about sixty members of the above Association on the occasion of a visit to the gardens of Culham Court, Henley-on-Thames, by the kind permission of Sir Henry and Lady Barber. The visit was arranged principally to see the rockeries, which were built under the personal supervision of her ladyship and from models made by her. The whole showed a most remarkable artistic taste, both in design and the grouping of the plants. Grass walks between the sections with a running stream and pool added greatly to the effect. The whole of the rock used in the construction was obtained from the famous Darley Dale (Matlock) district. Other features in the gardens were: (1) The wall garden clothed with large batches of Aubrietias, including such varieties as Dr. Mules, Fire King, Mrs. Marshall and Lloyd Edwards; (2) a long border containing scarlet oriental Poppies, blue Lupins, with an edging of the old-fashioned hardy Geranium pratense; (3) the topiary work in various designs cut out from ordinary Box trees by her ladyship. The presence of Sir Henry and Lady Barber during the whole of the ramble was greatly appreciated and a most hearty vote of thanks was tendered them for their kindness. A vote of thanks was also given to Mr. Stephens, the gardener, for the interest he had taken in the outing.

VALE OF EVESHAM ASPARAGUS SHOW.

THE second annual show under the auspices of the Vale of Evesham Asparagus Growers' Association was held at Badsey, a Worcestershire village near Evesham, and right in the heart of the Asparagus-growing industry, on Tuesday, June 1.

The weather was favourable, and although that experienced during the latter part of May, which included frost, rain, cold winds and hail, was greatly adverse to anything like prolific growth of Asparagus, the effect was only evident in the quantity of entries, and not in the standard of quality. Albeit, in this respect the quality was acclaimed by one of the judges to be of the highest seen for many years. Of the fifty-six exhibits, that of Mr. F. EMMS, junr., a Littleton grower, was adjudged the champion bundle, and this exhibitor won the Silver Challenge Cup offered for the best 120 heads in the show. Mr. W. H. JELFS, of Badsey, who was the most successful entrant, won the silver trophy offered for the best flat containing four bundles, and a third Silver Cup was won by Mr. H. WITTS, of Littleton, with the best machine-tied bundle of about thirty heads of Asparagus. There was a large and representative gathering at the luncheon over which the Association's president, Mr. C. A. Binyon, J.P., presided, supported by other officials, including the hon. secretaries, (Messrs. A. Boaler and B. S. Hatch), and Sir Julius Sladden, who later distributed the prizes. At the subsequent sale of the exhibits, the champion bundle realised £8, and the total proceeds amounted to close on £100. A special "hundred bundles," given by Mr. George Moisey of Badsey, for sale in aid of Cheltenham Hospital, realised £6.

ABERDEEN ROYAL HORTICULTURAL.

A MOST enjoyable outing of the directors of this Society and a few friends took place on Wednesday, the 9th instant. The objectives were the beautiful estates of Finzean (pronounced Fingin) and Ballogie, on Royal Deeside, owned respectively by Mr. Joseph Farquharson, R.A., and Major R. J. Nicol, O.B.E. A delightful hour or two were spent rambling over the policies and gardens at Finzean, which were in exquisite order, with tree and shrub and flower looking their very best. Proceeding then to Ballogie, the party were met at the entrance by Major Nicol, who conducted them up the avenue in which grow some of the finest trees in this country. From thence to the gardens, the mansion and terraces, and the forest nursery, where much was found to admire, the party spent a most enjoyable afternoon. At the conclusion of the visit, Major Nicol entertained the party and Sir Thomas Jaffrey, chairman of the Society, returned thanks on behalf of the company.

The return journey was made by Edgehill, the beautiful residence of Sir Thomas Jaffrey, where tea was served and an opportunity given to view the gardens and also inspect the very fine collection of pictures to be seen at Edgehill. Professor Craib, Professor of Botany in the University of Aberdeen, voiced the thanks of the party to Sir Thomas for the kind hospitality extended to them that day.

Obituary.

Lady St. Oswald.—A great gardener and garden lover passed away in the person of the Dowager Lady St. Oswald at the advanced age of ninety-five years, on Sunday, June 6, at Appleby Hall, Lincolnshire. Her ladyship was the widow of the first Baron St. Oswald of Nostell Priory, Yorkshire, and on his death she retired to the Dower House, where she devoted herself to laying out the grounds, and remodelling the garden. She designed all the beds and the planting of flowering trees and shrubs, and anyone visiting the Appleby Hall Gardens and grounds to-day will at once realise the foresight and taste that guided her in the art of landscape gardening. The Dowager Lady St. Oswald was a lover of all flowers, Roses and Carnations being, perhaps, her favourites, quantities of both being grown at Appleby. The gardening world is the poorer by the loss of such a lover of the "Garden Beautiful," The remains were interred in the family vault at Nostell, on Friday, June 11,

ANSWERS TO CORRESPONDENTS.

AMERICAN GOOSEBERRY MILDEW.—*H. F. Penryn.* Your Gooseberries are, as you suspect, affected with American Gooseberry mildew. As this is a notifiable disease, we advise you to communicate with your local horticultural inspector.

MEALY BUG ON VINES.—*J. M. H.* Mealy bug may be eradicated by the use of kerosene emulsion or soft soap. These should be used as winter dressings. During the summer all that can be done is to go over the bunches of Grapes with a camel-hair brush constantly and take up and destroy any of the insects; the cotton-like substance that covers the eggs should be touched lightly with another camel-hair brush dipped in methylated spirit. In winter all the loose bark on the rods should be removed and burnt, and the rods dressed with kerosene emulsion or soft soap, the latter applied at the rate of one ounce to the gallon of water.

NAMES OF PLANTS.—*Dora.* Helxine Soleiroiil. *B. S.* Nemophila insignis. *P. C.* 1, Lychnis Viscaria; 2, Ceanothus dentatus; 3, Genista hispanica; 4, Asphodeline lutea. *R. L. B.* 1, Silene pendula; 2, Lychnis Viscaria. *Murphy S.* Ceanothus Gloire de Versailles. *R. E.* a, Rhododendron Sigimund Rucker; b, R. Michael Waterer; c, R. Barclayanum; d, R. Lord Palmerston. *W. E. B.* 1, Piptanthus nepalense; 2, Phlox subulata Sprite; 3, P. s. G. F. Wilson; 4, Helianthemum tomentosum; 5, Saponaria ocymoides; 6, Cerastium tomentosum; 7, Arenaria balearica. *E. G. H.*, 1, We cannot identify the Rose; send a spray of ripe fruits in the autumn; 2, Lonicera tatarica; 3, L. Xylosteum. *D. M.* 1 Leiophyllum buxifolium; 2, Santolina Chamaecyparissus (Lavender Cotton); 3, Erysimum pulchellum; 4, Euphorbia Cyparissias.

PRESERVATION OF PEARS.—*Correction.* In *Gard. Chron.*, June 12, 1926, p. 427, the printer has converted to his own use the word "insoluble" and substituted "absolute" in its place in the penultimate paragraph (last line but one). Also in the footnote, "sulphite" should read in place of "sulphide." *H. E. D.*

SLEEPY DISEASE OF TOMATOS.—*C. C. S.* The Tomato plant you sent us is suffering from Verticillium wilt, or "sleepy" disease, caused by the fungus Verticillium albo-atrum. This fungus is a low temperature one and infected plants recover when the average day and night temperature is raised above 77°. If you have a large number of plants infected you should shade the houses, earth up the soil around the bases of the stems to encourage new roots and close down your houses, when possible, from two to four hours in the middle of the day. If only small numbers of plants are infected they should be pulled up and burnt. This fungus lives in the soil, and the only method of eradicating it is by sterilising the soil by steam. Chemical sterilisers have been tried, but mainly without success.

ST. BRIGID ANEMONES.—*A. B. C.* The failure of your St. Brigid Anemones to make long flower-stalks may be due to impoverished soil. You might try the effect of liquid manure when the plants are throwing up their flower stems. The Anemones you send from your neighbour's gardens are not the St. Brigid type as they are single.

THE ROSE BEETLE. *M. W.* This beautiful insect, which is often termed the Green Rose Chafer, is often very harmful to Roses and other plants. The adult beetles eat the petals and foliage of Roses, while the larvae feed on the roots. The beetles fly readily on fine days, but during cold, wet weather they may be found nestling in the blooms. They usually appear from the middle of May to the end of June, or later. The eggs, which are deposited in the ground, hatch into white grubs, much like those of the Cockchafer, but the six legs on the first three rings of the body are longer, and there is a deep reddish-brown spot on each side of the first thoracic segment. The grubs feed on the roots of various plants, including Roses, for two or three years, when they are about an inch-and-a-half long. When mature, the grubs change to pupae, in earthen cells, usually deep in the ground, and from these the beetles duly emerge. Hand-picking must be resorted to for the adult beetles, which, as we have stated, may be found in the blooms in cold and damp weather. The grubs may be trapped by removing the surface soil from around affected bushes and replacing it with grassy turves, placed upside down, which will attract the grubs. The larvae may be killed by forking in naphthaline at the rate of two-and-a-half ounces per square yard. For the naphthaline to be effective, the soil must be moist.

VINE FAILING.—*G.* Over-cropping and allowing the Grapes to remain hanging on the vines for a long period would have a weakening effect on the vines the following season. You do not state the name of the variety; some vines break strongly and are more healthy-looking than others, but are not so fruitful as those of more moderate growth. As the vine has broken very strongly the border may be composed of excessively rich materials, containing too much organic matter, in which the vine will grow with luxuriance but seldom ripen its wood properly. Give the border two light dressings of lime, and in the winter use more wood-ash and old lime rubble with the top-dressing; also dress the border with three parts of superphosphate and one of muriate of potash at the rate of four ounces to the square yard.

Communications Received.—J. S.—C. M.—W. W.—J. P.—G. E. W.—J. G. T.—E. K.—T. R. C.—H. C.—A. W.—J. O.—J. S.—E. T.—C. H. H.—A. J. H.—F. W. O.

MARKETS.

COVENT GARDEN, Tuesday, June 15, 1926.

We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Tuesday by the kindness of several of the principal salesmen, who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general average for the week preceding the date of our report. The prices depend upon the quality of the samples, the way in which they are packed, the supply in the market and the demand, and they may fluctuate, not only from day to day, but occasionally several times in one day.—EDS.

Plants in Pots, etc.: Average Wholesale Prices.

(All 48's except where otherwise stated).

	s. d. s. d.
Adiantum cuneatum per doz. ...	12 0-15 0
—elegans ...	12 0-15 0
Aralia Sieboldii	9 0-10 0
Araucarias, per doz.	30 0-42 0
Asparagus plumosus	12 0-18 0
—Sprengeri ...	12 0-18 0
Aspidistra, green	36 0-60 0
Asplenium, per doz.	12 0-18 0
—32's	24 0-30 0
—nidus	12 0-15 0
Cacti, per tray —12's, 15's ...	5 0—7 0
Cinerarias, 48's, per doz. ...	18 0-21 0
Crassulas, 48's, per doz. ...	24 0-30 0
Crotons, per doz.	30 0-45 0
Cyrtomium ...	10 0-25 0
Erica coccinea, 48's per doz.	24 0-30 0
—Cavendishii, 48's, per doz. ...	30 0-36 0
Fuchsias, 48's per doz. ...	12 0-18 0
Heliotrope, 48's, per doz. ...	12 0-15 0
Hydrangeas, pink, 48's, per doz.	24 0-30 0
—white, 48's per doz.	24 0-27 0
—blue, 48's, per doz.	24 0-36 0
Ivy Geranium, 48's, per doz.	15 0-18 0
—60's per doz. ...	9 0-12 0
Lilium longiflorum (Harrisii) 48's, 32's, per doz.	21 0-30 0
Marguerites, 48's per doz. ...	18 0-21 0
Nephrolepsis in variety ...	12 0-18 0
—32's	24 0-36 0
Palms, Kentia	30 0-48 0
—60's	15 0-18 0
Pteris, in variety	10 0-15 0
—large, 60's ...	5 0—6 0
—small	4 0—5 0
—72's, per tray of 15's	2 6—3 0
Rhodanthe, 48's, per doz. ...	12 0-15 0
Roses, Polyantha 48's, per. doz.	24 0-30 0
—Rambler, various sizes each	7 6 25 0
Spiraea, pink, 48's, per doz.	18 0-21 0
—white, 48's, per doz.	15 0-18 0
Stocks, white and coloured 48's per doz.	15 0-18 0
Verbena Miss Willmott, 48's, per doz. ...	18 0-21 0

Cut Flowers, etc.: Average Wholesale Prices.

	s. d. s. d.
Adiantum decorum, doz. bun.	9 0-10 0
cuneatum, per doz. bun. ...	8 0-10 0
Arums (Richardias) per doz.	5 0—6 0
Asparagus plumosus, per bun., long trails, 6's	2 0—3 0
med. sprays	1 6—2 6
short	0 9—1 3
—Sprengeri, bun. long sprays...	1 6—2 0
med. „ ...	1 0—1 6
short „ ...	0 4—1 0
Carnations, per doz. blooms .	2 6—4 0
Coreopsis, per doz. bun.... ...	4 0—5 0
Cornflower, pink, per doz. bun.	4 0—5 0
—blue, per doz. bun.	2 6—3 6
Croton leaves per doz. ...	1 9—2 6
Daisy Giant White, per doz. bun....	4 0—5 0
Fern, French, per doz. bun.	10 0-12 0
Forget-me-not, per doz. bun.	6 0—8 0
Gaillardias, per doz. bun. ...	5 0—6 0
Gardenias, 12's, 18's, per box	5 0—6 0
Gladiolus, The Bride, per doz. bun.	12 0-18 0
—primulinus 6's, per doz. bun....	15 0-18 0
—Blushing Bride, per doz. bun...	12 0-18 0
—Peach Blossom, per doz. bun.	12 0-18 0
—various Giant varieties, per doz. spikes ...	4 0—6 0
Gypsophila ...	9 0-10 0
Heather, white, per doz. bun.	10 0-12 0
pink, per doz. bun.	9 0-12 0
Iceland Poppies, per doz. bun.	2 6—3 0
Iris, blue, per doz. bun. ...	10 0-15 0
—mauve, per doz. bun. ...	12 0-18 0
—white, per doz. bun.	12 0-18 0
—yellow	15 0-18 0
Lapageria, white, per doz. blooms	3 6—4 0
Lilium longiflorum long, per doz.	3 0—3 6
Lilium speciosum rubrum, long, per doz. blooms ...	3 6—4 0
—short doz. blooms ...	3 6—4 0
Lily-of-the-Valley, per doz. bun.	18 0-30 0
Nigella, blue, per doz. bun. ...	6 0—9 0
Orchids, per doz. —Cattleyas ...	30 0-36 0
Paeonies, white, per doz. bun. 6's...	10 0-15 0
—pink, per doz. bun. 6's	9 0-12 0
—red, per doz. bun. 6's	12 0-15 0
Pinks, white per doz. bun. ...	3 0—6 0
Pyrethrum, double pink, per doz. bun.	4 0—6 0
—single red, per doz. bun. ...	3 0—4 0
—double white, per doz. bun.	3 0—5 0
Roses, per doz. blooms—	
—Madame Abel Chatenay ...	2 0—2 6
—Molly Sharman Crawford	2 6—3 6
—Richmond ...	2 6—3 6
—Columbia ...	3 0—3 6
—Golden Ophelia	3 0—4 0
—Sunburst ...	2 6—3 0
—Mrs. Aaron Ward	2 6—3 0
—Madame Butterfly	2 6—3 6
Scabiosa caucasica, per doz. bun....	5 0—6 0
Smilax, per doz. trails	5 0—6 0
Statice sinuata per doz. bun.	3 0—4 0
—Suworowii ...	12 0—18 0
Stephanotis, per 72 pips... ...	3 0—3 6
Stock, double white, per doz. bun.	12 0-18 0
Sweet Peas, per doz. bun. ...	9 0-18 0
Violas	1 6—2 0

REMARKS.—Supplies have increased compared with those of the previous week, and Carnations are cheaper, owing to a much larger supply, while the quantities of Roses are more than sufficient for present requirements. The quality generally of these flowers is good throughout. There has been a glut of blue Irises, Imperator and Nibrigg; the blooms have been exceptionally fine, but prices have been the lowest realised this season; white, yellow and mauve Irises have made better prices. Gladiolus primulinus and large-flowered varieties are arriving in excellent condition, and there is a good selection of varieties on offer, including pink, scarlet and yellow sorts. The newest subjects in this department are Coreopsis, Gaillardias, Scabiosa caucasica and a few bunches of white and mauve Sweet Sultan. Sweet-scented Paeonies are arriving in good condition from home-growers. Supplies of Gypsophila, Iceland Poppies, blue and white Nigella, Erigerons and large white Daisies are ample for present requirements; also Delphiniums, for which there is no great demand. Amongst choice flowers, white Lapageria is the newest arrival. Pyrethrums are getting over, the single varieties especially being generally poor in quality.

Fruit: Average Wholesale Prices.

	s. d. s. d.
Apples, West Australian—	
—Cleo	14 0-15 0
—Jonathan ...	— 13 0
Apples, New Zealand—	
—Sturmer ...	12 0-15 0
—Delicious ...	16 0-17 0
—Cleo	12 0-13 0
—Dunn's' ...	12 0-12 6
Apples, Tasmanian—	
—Ribston ...	9 0-11 0
—Cleo	10 0-11 0
—Dunn's Seedling	9 0-10 6
—others	8 0-10 0
Bananas	14 0-22 6
Figs, forced, per doz.	4 0-12 0
French Black Currants, per boat	12 0-16 0
Gooseberries—	
—Kent, halves	3 6—6 0
Grape Fruit ...	35 0-50 0
Grapes, English Black Hamburgh	1 9—4 0
—Muscat ...	3 6—8 0
Lemons, Messina, per box ...	17 0-25 0
—Naples, box	18 0-25 0
Melons—	
—Forced Guernsey specials ...	3 5—5 0
—others	2 0—4 0
Oranges—	
—Denia	12 0-25 0
—Murcia... ...	12 0-25 0
Peaches, Belgian, per doz. ...	4 0-10 0
Peaches, English, per doz. ...	6 0-18 0
Pear, Australasian—	
—Beurré Bosc ...	9 0-10 6
—Winter Nelis...	9 0-10 6
Pines	2 0—4 0
Spanish Apricots per crate ...	6 0-10 0
Strawberries, per 2 lb. chips ...	1 6—4 0
3 lb. „ ...	2 6—4 0

Vegetables: Average Wholesale Prices.

	s. d. s. d.
Asparagus, English—	
—Evesham—	
Special ...	5 0-10 0
Best... ...	2 6—4 0
—Devon ...	4 0—8 0
—Cambridge ...	1 6—2 0
Beans—	
—Madeira, per basket ...	3 0—3 6
Box	3 6—4 0
—Guernsey and Worthing forced	1 4—1 9
Beets, per cwt.	7 6—9 0
Cabbage, per doz.	1 6—2 0
Carrots, new, per doz. bundles	3 0—6 0
Cauliflowers, per doz.	4 0—6 0
Cucumbers, per doz.	4 0—5 0
—Flats	10 0-15 0
Horseradish, per bundle ...	1 6—2 0
Lettuce, round, per doz. ...	1 0—2 0
Marrows, forced per doz. ...	12 0-21 0
Mint	2 0—2 6
Mushrooms, —cups ...	2 0—3 0
—Broilers ...	1 0—2 0
Onions—	
—Egyptian ...	— 12 0
Parsnips, per cwt.	5 0—6 0
Peas, forced ...	1 0—1 6
—French, per bag	4 0—8 0
Potatos—	
—King Edward per cwt. ...	6 0—7 0
—others	4 0—5 0
New Potatos—	
—St. Malo ...	7 0—9 0
—Azores, per case	7 0—8 0
—Guernsey, per cwt.	10 0-12 0
—Jersey, per cwt.	10 0-12 0
Rhubarb, Outdoor, per doz.	8 0—9 0
Spinach, per bushel	3 0—4 0
Spring Greens, per bag ...	2 0—3 0
Tomatos, Canary Islands Best.	16 0-20 0
—English, pink,	7 0—8 6
—pink and white	7 0—8 6
—blue	6 0—7 0
—white	6 0—7 0
—Guernsey ...	7 0—8 0
Turnips, per cwt.	5 0—7 0
—new, per doz. bunches ...	6 0-10 0
Turnip Tops, per bag ...	3 6—4 0

REMARKS.—Business generally is fairly good. In some sections a considerable amount of produce is being handled at satisfactory prices. Choice fruits, such as Peaches, Nectarines, Figs, Grapes, Melons and Strawberries, are a steady business considering the variable weather. A sprinkling of English Cherries are being marketed, and in the absence of French Cherries, should sell well. Australian Apples are inclined to be cheaper. Oranges are a poor trade and not meeting with much demand. English Gooseberries are more plentiful, and the berries generally are a fine sample. Unfortunately for home-growers, Dutch Gooseberries, which are also of good quality, are selling very cheaply. Tomatos have ripened in large quantities and their prices are lower. Cucumbers are a firm trade. New Potatos, mainly from St. Malo and Jersey, are plentiful and cheaper, but some samples of each are showing signs of blight. Beans are quoted lower, and trade in forced Peas is being affected by the increasing supplies of out-door Peas. Trade in Asparagus during the past week was quiet, highest grade stems in particular selling poorly. At the time of writing, there is a report of a better trade in Asparagus. Spanish Apricots are arriving in larger quantities and selling moderately well. French Plums are in good condition and popular with the trade. Salads are a moderate business. Green vegetables are plentiful and cheap.

GLASGOW.

The feeling in the cut flower market during the past week was rather better, and while there was no material increase in business, prices showed a slight improvement. Supplies continued ample and, following on the change of weather, the condition of the blooms was more satisfactory. As indicated by the following quotations, dealings were absolutely featureless:—Irises (all colours), 1/- to 1/3 for 12's; Scotch-grown, 4d. to 8d. for 6's; Double White Narcissus, 3/6 to 4/- per dozen; Carnations, 2/6 to 4/6; Roses, 3/6 to 5/-; Sweet Peas, ordinary, 6d. to 10d. per bunch; special, 1/6 to 1/9; Lily-of-the-Valley, 1/9 to 2/-; Poppies, 6d. to 8d. for 3's; Helio and White Stocks, 10d.; Paeonies, 9d. to 1/- for 12's; Lilium longiflorum (Harrissii), 3/- to 4/6; Marguerites, 2/- to 3/- dozen; White Pyrethrum, 8d.; Mary Kelway, 7d. to 8d.; Queen Mary, 7d. to 9d.; and Langport Scarlet, 5d. to 7d.; and Asparagus Fern, 9d. to 1/3.

The bedding-out season is just about over, but Coltness Gem Dahlias were obtainable in quantity at 4/- per dozen.

The sensational press reports of a glut of Oranges in the London market, where sales were stated to have taken place at 4/- per case, were not confirmed by the dealings in the Glasgow fruit market. Murcia counts were 6/- to 10/- cheaper at 16/- to 30/- per case, but Valencia qualities ranging from 14/- to 20/- were affected in a lesser degree. First consignments of Southampton Strawberries were defective in colour and quality; they realised 1/- to 1/3 per lb., while Cheddar-grown berries were worth from 1/3 to 1/6. French Cherries made 10/- to 14/- per half sieve; Apricots, 7/- to 9/- per crate; English Gooseberries, 4d. to 4½d. per lb.; and English Black Hamburgh Grapes, 2/6 to 3/6 per lb. Prices of South African Pears and Australian and New Zealand Apples kept steady at previous quotations. Jamaica Bananas averaged 12/-, while Canary qualities ranged from 15/- to 26/-.

Tomatos continue to be cheap considering the season of the year. Prices for Scotch-grown Tomatos varied from 1/- to 1/4 per lb.; English-grown, from 10d. to 11d.; and Guernsey-grown, from 9d. to 10½d. Lettuces made 2/- to 2/3; English Cucumbers, 5/- to 6/- per dozen; Scotch Cucumbers, 4/- to 6/-; and Dutch Cucumbers, 3/6 to 4/6; Cauliflowers were worth 4/6 to 6/-; Mushrooms, 2/3 to 2/6 per lb.; French Carrots, 1/- per bunch and Turnips, 1/- to 1/3.

THE WEATHER IN MAY.

REMARKS.—The preponderating wind-directions were east and north-west, and until the 20th, the weather generally was very cool. Subsequently, however, much warmer conditions prevailed. The month was a decidedly wet one, but it was not dull. The mornings were sunnier and freer from rain than the afternoons. Thunderstorms kept outside the borough, as so generally happens at Southport. Frost was rather frequent, and did some damage to outdoor growth. High winds were restricted to the first two and the last three days, and the 17th, and no gales occurred. The month's mean temperature was 50·3°, or nearly a degree below the average. Rain fell on nineteen days, or five more than normal, and the total (in Hesketh Park) was 3·09 inches, or practically an inch more than the average. Fortunately, there were 208½ hours of sunshine, or only 1½ fewer hours than the average. Air pressure was somewhat low. A little thunder was heard on the 7th and 12th; and hail showers occurred on the 12th. Fog was absent. Haze prevailed at times, but, in the main, visibility was very good. *Joseph Baxendell, The Fernley Observatory, Southport.*

SCHEDULES RECEIVED.

HORNSEY AMATEUR HORTICULTURAL SOCIETY.—Flower show to be held in the Alexandra Palace (western entrance), on Saturday, July 10.—Secretary, Mr. H. W. Lane, 38, Park Avenue North, N.8.

GUILDFORD AND DISTRICT GARDENERS' ASSOCIATION.—Fourth annual show to be held on Wednesday, July 14, in the grounds of Stoke Park.—Secretary, Mr. E. Sawyer, 30, Recreation Road, Guildford.

STREATHAM AND DISTRICT ROSE AND SWEET PEA SOCIETY.—Sixteenth annual show to be held at Streatham Hall, on Tuesday, June 29.—Secretary, Mr. W. B. Strong, 6, Killieser Avenue, S.W.2.

WORCESTER PARK HORTICULTURAL SOCIETY.—Summer show to be held at Worcester Park on Saturday, July 17. Secretary, Mr. Albert E. Mustow, 10, Brinkley Road, Worcester Park.

CATALOGUES RECEIVED.

HURST AND SON, 152, Houndsditch, E.1.—Seeds (Wholesale).

WATKINS AND SIMPSON, LTD., 27, Drury Lane, Covent Garden, W.C.—Seeds. (Wholesale)

LAXTON BROS., Bedford.—New Fruits.

HEWITT AND CO., LTD., Solihull, Birmingham.—Garden lay-out.

JOSEPH FISON AND CO., LTD., Ipswich.—Fertilizers.

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THE

Gardeners' Chronicle

No. 2061.—SATURDAY, JUNE 26, 1926.

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Average Mean Temperature for the ensuing week deduced from observations during the last fifty years at Greenwich, 61.6.

Actual Temperature—
The Gardeners' Chronicle Office, 5, Tavistock Street, Covent Garden, London, Wednesday, June 23, 10 a.m. Bar. 30.1°. Temp. 60°. Weather, Cloudy.

Early Potatos.

The importance of planting the most suitable variety of early-cropping Potatos is recognised by all growers, whether they be private gardeners or market growers. But the choice of the variety is by no means easy, for evidently the prime object to be sought must not be dissociated from a reasonably fair yield. Moreover, among market growers, at all events, the question of susceptibility or immunity from Wart Disease must, perforce, be taken into consideration. It might seem to those who know little of the vagaries of vegetation that a few well-conducted trials should suffice to settle the order of merit with respect to earliness and yield of the well established and the recently introduced "first earlies." Experience shows, however, that simple problems are not always susceptible of quick solutions ; for simplicity is often a subtle attribute of living things and the first thing that is learned when trials are made is that varieties of plants are like cats, displaying a singular preference for certain localities and a marked dislike for others. It is therefore necessary in conducting a trial to test earliness to arrange for its conduct in a number of different localities. These considerations have been taken into account by the Potato Committee of the National Institute of Agricultural Botany and therefore the results which have been reached, although not final or complete, are well worth the close attention of Potato growers. The first fact which emerges from the Report* is the fact that of the varieties tested those susceptible to Wart Disease are superior, with respect to earliness and yield combined, to those which are immune from that disease. The immune varieties included in the trial were America, Immune Ashleaf, Di Vernon and Snowdrop, and the susceptible varieties were Duke of York, Epicure, Sharpe's Express, May Queen and Ninetyfold. In order to form a useful judgment, attention was paid to the five characters,—time taken to reach maturity, yield, relation of yield to maturity, proportion of ware to chats, and general health, as revealed by the trials at four stations, viz., Ormskirk, Lancashire ; Kirton, Lincolnshire : Truro, and the neighbourhood of Edinburgh. The order of merit with respect to earliness was found to be : Di Vernon, Ninetyfold, Epicure, May Queen, Duke of York, Snowdrop, Immune Ashleaf and Sharpe's Express ; the leader (Di Vernon) taking an average of 110 days to mature and the last (Sharpe's Express), 126 days. Although only third with respect to time of maturity the fine old variety Epicure led the field with respect to yield, producing the large average crop of over eleven tons to the acre. It was closely followed by Sharpe's Express—a variety which is and deserves to be a favourite with all gardeners with whom it succeeds. Duke of York came third with ten-and-a-half tons, and Di Vernon, first in maturing, came last with a little less than eight tons to the acre. It might seem hopeless to expect high yield and earliness to go together, but Epicure at all events makes a brave effort to achieve the improbable, standing as it does third in order of earliness and first in yield. Not the least important conclusion to be drawn from the trial is that health of stock is of paramount importance. Many of the current views with respect to this or that variety not doing well in a given district are probably to be ascribed to poorness of the stock which happened to be used. Thus in the two years' trials now under consideration, Immune Ashleaf did relatively badly, probably not because the variety lacks merit as an early Potato, but because the stock used happened to be suffering from Mosaic Disease and Leaf Roll. Di Vernon likewise was a sufferer from the latter disease. The general conclusion, which must, however, be regarded as provisional, is that taken all round Epicure stands first, America or Duke of York second, but for earliness, regardless of heaviness of yield, Ninetyfold and Di Vernon are the premier varieties. There is evidently, therefore, further scope for the exercise of the Potato breeders' art. An early immune variety equal to the best of the susceptibles is required and so also is a variety which will rival Epicure in yield and come to maturity a week earlier. Nor is there any reason to think that the efforts to produce this paragon of early Potatos will fail of success. Once it is realised what is required, time and human skill may be relied upon to achieve it. In the meantime the all important subject of Mosaic and allied obscure diseases of Potatos calls for active and extended research. The losses which growers sustain from these diseases are enormous and appear to be increasing. May we not look to the Council of the National Institute of Agricultural Botany which is doing such good work, to fulfil its device "Better seeds and better crops," to propound, in conference with seedsmen and growers, a programme designed to check the ravages due to these diseases ?

National Rose Society.—The ever-popular summer exhibition of the National Rose Society will be held this year, as usual, in the gardens of the Royal Botanic Society, Regents Park, the dates being Friday and Saturday, July 2 and 3. This annual exhibition undoubtedly provides the most extensive and varied display of Roses to be seen in any part of the world. The most interesting feature of the exhibition is invariably provided by the new seedling Roses presented for the award of the Gold Medal of the Society.

Garden Books at the Guildhall Library.—On his retirement from the post of City Librarian at the Guildhall, Mr. Bernard Kettle has been presented with the Honorary Freedom of the Gardeners' Company in recognition of his services in connection with compiling the catalogue of books on gardening and allied subjects. The principal volumes treat with the cultivation of flowers, fruits and vegetables, and are now available at the Guildhall Library for the use of garden lovers who are unable to purchase the more expensive books dealing with the art and craft of gardening.

Davenham Gardens and the Gardeners' Royal Benevolent Institution.—Through the kindness of Dyson Perrins, Esq., the grounds of Davenham, Malvern, were thrown open to the public for the benefit of the Gardeners' Royal Benevolent Institution (Worcester Auxiliary), on Thursday, June 17. In spite of the wet day, over three hundred people passed through the beautiful pleasure grounds and gardens.

Prize Garden Schemes for London.—In connection with the above we would remind our readers that by permission of the First Commissioner of His Majesty's Works, an exhibition of plants and shrubs suitable for town gardening was for many years held in the Institute Room, at Whitechapel. The plants for this purpose were cultivated in Regent's Park by Mr. A. D Webster, then superintendent, and arranged and labelled on a rockwork on the ground floor of the building. During each afternoon one of the gardeners from the park was in attendance and gave all necessary information as to the plants and their culture, with demonstrations of a practical kind, in the preparation of soils, potting, taking cuttings, and propagating. These practical demonstrations did a great amount of good, and were the means of spreading a knowledge of town plants and their culture in at least one of the most soot-begrimed districts of eastern London. A number of experiments were also conducted in the public garden attached to the Tower of London, in order to test which trees and shrubs could best withstand the impurities of an East-end atmosphere. It may be of interest also to state that grown in a cramped position, hard by the Commercial Road, amid foul air and dust, may be seen an example of the Ginkgo biloba, or Maidenhair tree, which seems to be well adapted for battling with the impure atmosphere of even the worst part of the Metropolis. Near by, is a well-developed plant of Skimmia japonica, while the Bladder Campion (Silene inflata) seems to positively revel in the dust-dry and soot-impregnated soil of an adjoining garden.

Importation of Raw Cherries from France.—The Order of the Ministry of Agriculture, which came into force on the 16th instant, requires all consignments of Cherries shipped from France to be accompanied by an official certificate to the effect that the Cherries were grown in a Department in which the Cherry-fruit-fly is not known to exist. Several consignments have arrived accompanied by certificates to the effect that the particular consignments were free from infestation, but without the required statement as to the freedom from the pest of the Department in which the Cherries were grown, and the Ministry has been compelled to order the destruction or re-exportation of these consignments. Importers of French Cherries should take care to see that their consignments are accompanied by a certificate in the proper form, of which the following is approximately the French equivalent :—

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* The *Journal* of the National Institute of Agricultural Botany, 4, 1925.

"*Le soussigné certifie que les Cerises fraiches contenues dans les colis composant la consignation cidessous proviennent et ont été récoltées dan un Department ou de la mouche ou Cherry Fly* (*Rhagoletis Cerasi*) *n'existe pas.*

Silver Wedding of Mr. and Mrs. R. C. Notcutt.—On March 1, 1897, Mr. R. C. Notcutt took over the Woodbridge Nursery from the late Mr. John Woods. He was then living in his native town of Ipswich. On June 12, 1901, he married Miss Fielding, also of Ipswich, and from that time, the Woodbridge Nursery has been their home, and the centre of their interest. The twenty-fifth anniversary of their wedding day was made the occasion of entertaining all the employees, and spending the evening in their company. The party, numbering ninety-eight, met at the Crown Hotel, Woodbridge, and all enjoyed the ample repast provided, as well as the very pleasing entertainment which followed. During the evening Mr. and Mrs. Notcutt were asked to accept a silver tea service as a little memento of the auspicious occasion, this having been subscribed for by the employees and their wives and families, emphasis being given to the good spirit which was behind the gift rather than its intrinsic value. Mr. Notcutt suitably responded and thanked all for their generous present.

The Men of the Trees.—In 1922 Mr. R. St. Barbe Baker, Assistant Conservator of Forests, initiated amongst the African tribesmen in the Highlands of Kenya Colony the movement known as "The Men of the Trees." As Mr. St. Barbe Baker is now home from Nigeria and the World's Forestry Congress at Rome, the Hon. Mrs. Pease called a special drawing-room meeting at her house in Bryanston Square, London, when those in sympathy with the movement were invited to meet Mr. Barbe Baker. Col. R. E. Crompton, the chairman of the organisation, presided and the Hon. Secretary the Hon. Mrs. Grant Duff, gave an account of the recent work of the movement. In the course of a most interesting address Mr. St. Barbe Baker explained how he was induced to start the movement. He had been impressed by the wasteful methods of the natives who, when clearing spaces in the forests, burned the trees, creating great destruction. He first organized a dance at his camp and during the evening addressed the natives, with the result that five hundred pledged themselves to plant ten acres with trees each year and to care for all existing trees. For the most part this pledge has been faithfully kept, and the movement had spread considerably. Mr. St. Barbe Baker said that similar destruction of trees was going on in the West Coast of Africa, and, alarmed by his recent experiences, he had felt impelled to further efforts for forest protection in tropical Africa. He said that we paid £50,000,000 a year for imported timber and that "it was now recognised that the man who planted trees rendered a greater service to the community than the man who planted food."

Meconopsis betonicifolia v. M. Baileyi.—The Hon. Henry D. McLaren, Bodnant, Tal-y-Cafn, N. Wales, writes : "I was interested in the note in your issue of June 19 (p. 431) in regard to the correct name of Kingdon Ward's Meconopsis No. 5,748. You are right in thinking that the authorities at Kew were of opinion in April that this plant was M. betonicifolia. Since that time the plant has flowered and fruited with them, and on examination they found that the ovary and fruit were clothed with hairs, which was not the case with M. betonicifolia. I have not the botanical knowledge which would help me to hazard an opinion on the matter, but to a layman, I think that the statement in Captain Kingdon Ward's article in your issue of May 8 is conclusive that his number 5,784 is M. Baileyi. Bailey's specimens of M. Bayleyi were collected at Lunang, on July 10, 1913, while Captain Kingdon Ward's No. 5,784 was in full bloom at Lunang in July, 1924, in great quantity and unaccompanied by any other blue Meconopsis. It may be interesting to note that Mr. Forrest, who has seen M. betonicifolia growing, is of opinion that it is a biennial, while Captain Kingdon Ward states of M. Baileyi that it is a perennial. Whether Captain Kingdon Ward is correct will, of course, shortly be proved by observation of the plant in cultivation."

Lt.-Col. F. R. Durham; the new Secretary of the Royal Horticultural Society.—After long and careful deliberation the Council of the Royal Horticultural Society has appointed Lt.-Col. F. R. Durham, C.B.E., M.C., to be secretary of the Society. Lt.-Col. Frank R. Durham, C.B.E., M.C., M.Inst.C.E., is fifty-four years of age, and was educated at Rugby and at University College, London. After leaving college, he was engaged in engineering, and in 1914 joined the army as a private and was gradually promoted to the rank of Major, receiving the following decorations : O.B.E., M.C. and Chevalier of the Legion of Honour. In 1919 he was appointed Director of Works of the Imperial War Graves Commission, the appointment terminating on December 31, 1925. For services rendered to the Commission he was promoted, to the rank of Lieut.-Colonel and received the C.B.E. Lt.-Colonel Durham has always been interested in horticulture; he has collected a number of new plants and has published papers in the *Journal* of the R.H.S. He comes of a distinguished family, which includes our frequent contributor, Dr. H. E. Durham, of Hereford, the authority on cider and perry fruits; Miss F. H. Durham, C.B.E. Chief Woman Inspector of the Ministry of Labour; and Miss M. E. Durham, the well-known traveller and writer on Balkan matters. Our portrait is from a drawing by Mr. Francis E. Hodge, R.B.A., to whom and to the Editor of *The Studio* we are indebted for permission to reproduce it. The President, Lord Lambourne, has taken the opportunity afforded by this appointment of expressing the Council's unanimous appreciation of the services rendered to the Society by the assistant-secretary, Mr. A. Simmonds, since the death of the late secretary, Mr. W. R. Dykes.

LT.-COL. F. R. DURHAM, C.B.E., M.C.

The new Secretary of the Royal Horticultural Society.

Proposed Dykes Memorial Medal.—The members of the Iris Society of England met at the Grosvenor Hotel on Wednesday evening, June 16. After dinner, the President, Mr. Pilkington, asked the members to stand whilst he made a sympathetic reference to the great loss sustained, not only by the Society, but by horticulture generally, by the sad death of one whose name was known and revered throughout the gardening world. This was the first meeting of the Society since the accident that had robbed them of one who was at once their friend and guide, and he felt it was superfluous to suggest that the Society would wish that he should, on behalf of the Society, express the sympathy of its members with Mrs. Dykes in her bereavement. A motion supported by Sir William Lawrence, Bart., Mr. G. P. Baker, Mr. George Yeld and others, that a Dykes Memorial fund should be instituted by the Society for the purpose of commemorating the great work carried out by Mr. Dykes on behalf of the genus Iris, met with unanimous approval. A medal was suggested, but the details were left for further discussion at the next meeting. Mrs. Dykes was elected a life honorary member as a small but genuine expression of the gratitude of the Society towards one "whose name would rank with that of Sir Michael Foster, as having had the most potent influence on the cultivation of the genus in his generation, whose knowledge of it was unfathomable, and whose enthusiasm was unbounded." Certain points regarding the method of conducting the Iris trials now taking place at Wisley, were then discussed. It was resolved that in addition to the periodical inspection made by the Joint Committee of the R.H.S. and Iris Society a general meeting of the Society should be arranged to take place at Wisley during the flowering season. Several members who had recently visited the trial grounds reported that very successful growth had been made, and that the varieties on trial were looking exceptionally well. It was also resolved to endeavour to arrange an Iris show during the first week in June, 1927, to be held at Vincent Square. In his concluding remarks the President stated that, despite the growth made by the Society since its inception, it was necessary to increase its membership considerably if it was to keep its place as a progressive combination active in the advancement of the genus to which the Society is devoted.

National Playing Fields Association.—At a meeting which will be held at the Central Hall, Westminster, at 5.30 p.m., on June 28 next, the chair will be taken by the Lord Lieutenant of the County of London, the Marquis of Crewe, at the direct request of the King, who is intensely interested in the work of the Playing Fields Association. The chief speakers will be Sir Arthur Crosfield, Bt., Sir Thomas Inskip, K.C., M.P., and Brigadier-General R. L. Kentish, members of the executive, who will explain the aims and objects of the Association, and hope to enlist the sympathies of all public bodies as well as private individuals in order to provide more playing fields for Londoners, especially for the children.

"Flowering Plants of South Africa."—Part 22 of vol. 6, comprising the issue of April, 1926, of *The Flowering Plants of South Africa*, contains illustrations and descriptions of ten plants. Some have been known for many years in this country; Cyrtanthus collinus, t. 211, was figured in the *Botanical Register*, t. 162. This bulbous plant has a pair of leaves contemporary with the flowers, that are produced on an umbel. The flowers, as shown in the illustration, are brick-red; they are tubular, with long pedicels. Sansevieria aethiopica, t. 212, produces its clusters of pretty lilac flowers on a stem 40-75 cm. tall. It is one of the species from which fibre is obtained. Pterodiscus speciosus, t. 213, was flowered in this country in 1844. The flowers are very pretty and developed in the leaf axils. They are tubular, of bright red-purple and shaped something like a Streptocarpus bloom. This Pterodiscus has a large, globose, underground stem from which the annual shoots bearing flowers appear. Streptocarpus Vandeleuri, t. 214, is said to be a good subject for the conservatory. The single leaf is very large, and near where it arises two or three inflorescences develop bearing curved flowers which are described in the text as white, but shown in the illustration pale lemon, dotted with hairs. Xysmalobium undulatum, t. 215, is a common Asclepiad from South Africa growing some five feet high. The flowers are produced in umbels; they are of a dull green colour tinged with purple at the tips of the petals. Huernia Loeseneriana, t. 216, greatly resembles a Stapelia both in its fleshy growths and in its flower. Bulbine asphodeloides, t. 217, is said to grow in large tufts and is easily cultivated. The leaves are sub-terete and developed in a tuft. The peduncle grows as much as 35 cm. long, bearing on the upper part a dense raceme of star-like, yellow flowers. Euphorbia Monteiri, t. 218, flowered in the Cactus house at Kew so long ago as 1865. The plant has a glaucous hue and bears inflorescences as a terminal cyme with chocolate or dark brownish-red involucres. Pachycarpus concolor, t. 219, has conspicuous flowers, in pairs, of a dull violet or dark purple-brown colour, varying to greenish or yellowish-green, with purple-tinted tips. The leaves are wavy and the very irregular margin has a narrow band of dark purple. Eucomis undulata, t. 220, was raised from seed by P. Miller in 1760, at the Chelsea Physic Gardens and was figured in the *Botanical Magazine* so long ago as 1808. The flowers are pale green and not very attractive. It is a unique species in having a coma of leaves above the inflorescence.

Honours for French Horticulturists.—In connection with the organisation of the exhibitions of decorative art held last year in Paris, we are pleased to learn that MM. Abel Chatenay and Alfred Nomblot have been nominated Commanders of the Legion of Honour, and that the rank of officer has been conferred on M. Cayeux, a well-known Paris nurseryman; M. J. C. N. Forestier, the curator of the Paris parks and gardens, and Madame Philippe de Vilmorin, the present head of the firm of Messrs. Vilmorin-Andrieux, Paris, and Verriéres. To several other nurserymen the rank of Chevalier has also been awarded. It is noteworthy that the rank of Commander has never heretofore been bestowed on a horticulturist, and all the friends of MM. Chatenay and Nomblot will congratulate these gentlemen on the well-merited distinction.

French Pestological Conference.—The Paris railway company serving the Lyons and Mediterranean districts has arranged a conference at Lyons from the 28th to the 30th June, for the study of means to combat insect pests, mainly of the vine, fruit trees, market crops and flowers for export. It is hoped by this means to make better known the results of the researches carried out in the official laboratories. The Minister of Agriculture has approved the objects of the Conference, and M. Mangin, the Director of the National Museum of Natural History, will preside.

Elstree Flower Show.—On the occasion of the Elstree and District Horticultural Society's exhibition at Aldenham Park, on July 17, the grounds and gardens of Aldenham House will be open to visitors to the show.

Fruit and Vegetable Crops in the Vale of Evesham.—The rains and the recent warm weather have made a vast difference to the fruit and vegetable crops in the fertile Vale of Evesham, where the countryside is now looking its best. Following the appearance in the markets since the beginning of the present month of Strawberries and Gooseberries, Peas and Broad and Seville Beans, Currants made their appearance on Monday, June 21, when two chips of Black Currants made elevenpence per pound, and one chip of Red Currants made fourpence-halfpenny per pound. The Black Currant crop is rather poor, but Red Currants promise to be a little more plentiful. Strawberries, like many other crops, have been affected by the unfavourable weather experienced during the past month, and are consequently not of their usual high quality. In many cases Gooseberries have suffered from mildew, but there should be a fair crop. Plums, however, are yielding a heavier crop than was at first estimated. There will be rather more than a three-quarter crop of the local popular variety —the Egg Plum; Victorias are better than last year, and, generally speaking, there is a three-quarter crop here also. Other coloured Plums, however, including Damsons, are patchy, and in certain places, almost a failure. Many crops have been sold already, Pershores, in most cases, having changed hands at about 10s. per pot, while figures ranging from 15s. to 17s. 6d. are general where Victorias are concerned. These are satisfactory prices. There will be a poor crop of Apples, and Pears also are patchy: many of the latter have fallen off of late. A continuance of the fine, warm weather experienced during the past week-end is the all-important matter at the moment and should the growers be favoured, the soft fruits should not be long in arriving at the markets in much larger consignments.

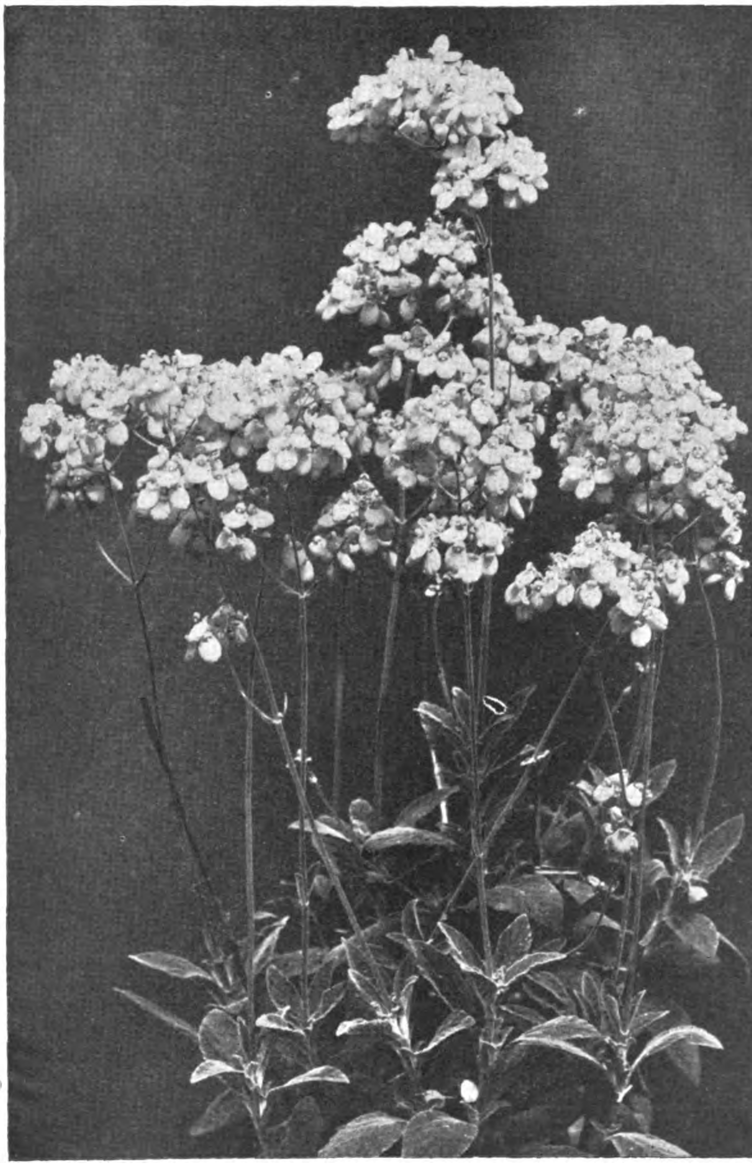

FIG. 227.—CALCEOLARIA J. COUTTS.

R.H.S. Award of Merit, June 15. Flowers bright canary-yellow (C. integrifolia × C. cana). Shown by The Director, Royal Gardens, Kew.

(see p. 445).

Appointments for the Ensuing Week.—Tuesday, June 29: Royal Horticultural Society's Committees meet (two days); Streatham and District Rose and Sweet Pea Society's show. Wednesday, June 30: Cheltenham Spa Floral Fête in conjunction with the National Sweet Pea Society's show (two days). Thursday, July 1: Newport Horticultural Society's Rose show. Friday, July 2: Accrington and District Chrysanthemum Society's meeting. Saturday, July 3: British Mycological Society's Phytopathological meeting at Harpenden; Blackburn Horticultural Society's meeting.

"Gardeners' Chronicle" Seventy-five Years Ago.—*Rhododendrons.*—Three or four plants of the true R. arboreum have this spring bloomed in the open ground at Coombe Royal, after a growth of some years. The plants in question were raised from seed, imported from Nepaul by Messrs. Veitch, and were planted out-of-doors as an experiment. Though Coombe Royal is situated in one of the mildest parts of Devonshire, a still warmer climate seems to be required by this magnificent shrub, as the young shoots are often injured by a spring frost, and the flower buds also damaged It is observable that many of the seedlings vary in size, form and hue of their flowers, several being spotted, others of a uniform tint, while one has produced such a cluster of blossoms of glowing scarlet, which for size, texture and waxy opaque colour (if I may use such a term) as few conservatory plants can boast. R. arboreum roseum, being of a more robust constitution, has flowered during the month of April, in the most luxuriant manner, while R. zeylanicum produced perfect heads of bloom in January. Is there any difficulty in growing the yellow and buff hybrid Rhododendrons, raised by Mr. Smith? and have they succeeded anywhere in a satisfactory manner, in the open air? *A Devonian. Gard. Chron., June 28, 1851.*

The Week's Work.

THE ORCHID HOUSES.

By J. Collier, Gardener to Sir Jeremiah Colman, Bart., Gatton Park, Reigate, Surrey.

Odontoglossum citrosmum.—The young growths of this Mexican Odontoglossum are making considerable headway, and many plants will have passed out of flower. Any necessary repotting should be done at this period; plants that are growing in compost that is sweet and in good condition need not be disturbed provided there is sufficient space in the receptacle for another season's growth. When repotting, use receptacles of just sufficient size to hold the plants comfortably, as they do not make many roots; shallow Orchid pans that may be suspended are preferable to baskets or pots. Provide plenty of drainage material and use a shallow depth of compost, that may consist mainly of Osmunda-fibre and a small quantity of Sphagnum-moss, both materials cut up in rather short portions and well mixed together. Cut off all useless, back pseudo-bulbs, and press the soil firmly. Suspend the plants in a light position in a house having an intermediate temperature. For a few weeks after root-disturbance, keep the surface of the compost just moist, but towards the completion of growth the plants will require a liberal supply of water, up to the time that the pseudo-bulbs are fully matured, when moisture should be withheld gradually and the plants afforded a long season of rest.

Coelogyne pandurata.— This distinct and interesting Orchid is now growing freely and should be well supplied with water. Repotting should be done when new roots are seen to be pushing from the bases of the young shoots. Provide drainage material and, as the pseudo-bulbs are set widely apart, use a long receptacle, such as a Teak-wood basket, and Osmunda-fibre as a rooting-medium. When repotting is completed, the rhizome may be partially severed in front of the useless back pseudo-bulbs, when new roots and fresh growth will develop. They may then be detached to form separate plants or the space between them filled with soil. During the growing season this Coelogne should be grown in the warmest house where the atmosphere is moist, but when growth is finished a cooler temperature is advisable, and the plants may be kept drier at the roots. The hybrid C. burfordiense produces spikes and flowers very similar to the species, and will grow well in an intermediate temperature at all times.

THE KITCHEN GARDEN.

By F. Streeter, Gardener to Lord Leconfield, Petworth Park, Petworth, Sussex.

Broad Beans.—Pick the pods when they are quite young. Keep the plants in an upright position with the aid of strings stretched along the rows. Remove the tops from the later batches as they come into flower, and if black fly is present syringe the foliage with Quassia extract.

Tomatos.—Sow sufficient seeds in six-inch pots filled with sandy soil, for a late batch of plants. Raise the seedlings in a cool house and pot them singly so soon as they are large enough. This batch is a very important one for carrying on the supplies until the new year, therefore every care should be taken to ensure strong, healthy plants. Grow them on in a cold frame, from which the light should be removed except in wet weather, when they should be tilted against the rain. Grow a few yellow varieties; these make a very pleasing change and are greatly appreciated. The plants growing against walls will require frequent attention; keep all side shoots pinched out and stop the main shoot at the fourth truss. See that the plants are secured to stakes; at the time of writing they have not required watering.

Dwarf Beans.—This crop is making very slow progress and it will be found advisable to sow several batches in warm positions. Waxpod Beans make a very useful dish and offer a welcome change to the ordinary Beans.

Parsley.—A liberal sowing of Parsley seed should be made to raise plants for furnishing leaves in winter. It is a good plan, where this garnishing herb does not withstand the winter, to sow on prepared beds so that frames and lights may be placed over the plants from November onwards.

Carrots.—Keep a sharp watch for attacks of green fly; the young foliage of attacked plants will have a coloured tinge in place of the bright green colour. Look on the under sides of the leaves closely and if aphis is present dust them well with soot or syringe with weak Quassia extract.

General Remarks.—The kitchen garden is furnishing plentiful supplies of early and choice vegetables, and much time is needed in watering and keeping the crops free from pests. Black fly on Broad Beans should be kept in check by removing the points of the plants, and syringing the latter with Quassia extract. Weeds should be kept under by stirring the soil with the Dutch hoe, and this should be done whether weeds are visible or not. Up to the present much labour has been required to keep the ground clean.

FRUITS UNDER GLASS.

By T. Pateman, Gardener to Sir Charles Nall-Cain, Brocket Hall, Hertfordshire.

Grapes Scalding.—Certain varieties of Grapes are particularly prone to scalding, and among them are such varieties as Madresfield Court and Lady Downe's Seedling. On the first appearance of scalding the vines should be given immediate attention, or the promise of a good crop may be spoiled in a very short time. I have traced the trouble, in some cases, to lack of moisture at the roots, which causes the skin of the berry to harden and become susceptible to scalding; and another cause is a rapid rise in the temperature during the early morning. It is very important at this stage to use a little warmth in the hot-water-pipes to permit of opening the ventilators a trifle at nights. With a small amount of fire-heat the ventilators may be opened early in the mornings so that condensed moisture that may have collected on the berries will disappear before the sun gains power. It is sometimes necessary to shade the glass slightly if the trouble is unusually severe, but if this is done it will be wise to remove the shading material so soon as the trouble is past, which, as a rule, lasts from ten to fifteen days. During the stoning period it will be necessary to maintain a somewhat drier atmosphere in the vinery in the mornings, and when the floors are damped care must be taken to prevent water coming in contact with the hot pipes, as this would cause steam to rise from them, which should be guarded against at all times, and more especially when the Grapes are passing through their stoning stage.

Watering inside Fruit Borders.—It is essential, during the summer months, to keep a watchful eye on all kinds of fruit borders to see that they never lack moisture. In this matter the grower must be partly governed by outside conditions and partly by the condition of the border. If the border is well-drained and the trees or vines are in a healthy condition, the border will in all probability be filled with roots, and during hot weather the soil can scarcely be over-watered, while on the other hand, where they are not growing vigorously, a little care is needed or the border will become soured with an excess of moisture. In either case, whenever water is applied to fruit borders see that it is done judiciously.

HARDY FRUIT GARDEN.

By W. Auton, Gardener to Viscount Elveden, Pyrford Court, Woking, Surrey.

Apricots.—The branches of Apricot trees are liable to die back suddenly, and it is wise when training in new wood to bear this in mind, and wherever possible to lay in an extra growth which could eventually replace a branch that has died back. Apart from this, all unnecessary growths should be removed to prevent overcrowding of wood. The days are now at their longest and trees on walls make great demands on their rooting-system for moisture, loss being great through both evaporation and transpiration, hence the borders should be examined frequently to ascertain if water is necessary, and where trees are carrying heavy crops of fruit, occasional doses of dilute liquid manure or other fertilisers should be afforded the roots. Earwigs are sometimes very destructive to fruits on walls and seem to have a special liking for Apricots, which they spoil by gnawing the skin while it is green. The dry conditions of an old wall make this an ideal harbour for them, and trapping by means of hollow canes laid amongst the branches should be persistently followed.

Black Currants.—The bushes are carrying good crops of fruit which is beginning to ripen. Where berries are hanging close to the ground a mulch of straw or other litter should be used or many of the lower fruits will be spoiled by splashing. Black Currants do not seem to have the attractions for birds that Red Currants have, but if they are troublesome the bushes should be netted securely, stretching the nets on stout wires well above the bushes, and seeing that they reach the ground in every position.

Strawberries.—The Strawberry season is now at its height, and gathering the fruits will be a daily necessity. Choice, dessert berries should be gathered in the mornings before they become heated by the sun, and those needed for preserving, when they are perfectly dry. Strawberry jam is a favourite confection in most establishments, and in recent years demands have increased considerably for bottling purposes also. For this purpose, medium fruits of uniform size should be selected. The packing of Strawberries for rail transit has to be done in many establishments, and whatever method is adopted, the chief point is to pack firmly. Fruit in bulk travels quite well in small, shallow chips, but choice berries of first grade should be packed in shallow boxes constructed to hold only one layer, and each berry should be wrapped in a leaflet.

THE FLOWER GARDEN.

By F. C. Puddle, Gardener to Lord Aberconway, Bodnant, Taly-Cafn, North Wales

Dahlias.—Plants which were potted early are commencing to flower. Support the growths with stakes sufficiently strong to withstand the early autumn gales, so that the plants will not be damaged by being blown down just when they should be at the height of their beauty. For tying material, use raffia at full strength; thin tying materials are apt to chafe and cut the succulent growths. Remove all weak shoots from the bases of the plants; three or four good shoots are sufficient to retain on even the strongest clumps.

Border Carnations.—The flower spikes on border Carnations are well-advanced and provision should be made for supporting them. Spiral wire stakes provide convenient supports for this type of Carnation, but if wooden stakes are used the necessary ties should be made in the form of single loops so that they will slip up the sticks as the flower-spikes elongate. Any necessary disbudding of the plants should be done as early as possible. Many beautiful new varieties of border Carnations have been raised in recent years, and these flowers offer fine material for furnishing beds and borders.

Climbers.—Climbing plants on walls and trellises are growing rapidly, yet in the stress of other work they are frequently overlooked until the growths become interlaced and unmanageable. Clematis, Vines, Wistarias and other quick-growing plants should, if possible, be given periodical attention and the growths trained in the space available for them. Climbers on walls may need occasional waterings, as summer rains have little effect on the soil at the base of a wall.

PLANTS UNDER GLASS.

By John Coutts, Assistant Curator, Royal Botanic Gardens, Kew.

Mignonette.—A sowing of Mignonette seeds made about the middle of June should provide a useful batch of plants for flowering towards the end of summer and early autumn. The seeds may be sown direct in the flowering pots, those of five-inch in diameter being suitable. Thin the seedlings to three or four in a pot. If preferred, the seeds may be sown in pans or boxes and the seedlings pricked off into small pots, for, contrary to the common belief, Mignonette transplants readily. Subsequent cultural details include potting the plants on as they require it until they are in six-inch pots, in which sized receptacles fine specimens may be produced. The potting compost should consist of well-matured, good, medium to heavy loam, with enough sand, or better still, some old mortar rubble, to render the soil open and porous; for lime is essential to the successful cultivation of Mignonette. Perfectly cool treatment and careful watering are necessary at all times.

Border Carnations.—Where border Carnations are grown in pots, and they are very beautiful for this purpose, they should be layered after flowering in the same way as advised for the Malmaison varieties, or they may be layered in their flowering pots, but this requires considerable skill and practice. Perpetual-flowering Carnations should be potted on as they require it. All Carnations enjoy a fairly heavy loam, without the addition of leaf-soil, and old mortar rubble should take the place of sand, as they are all lime-lovers.

FOR NORTHERN GARDENERS.

By A. T. Harrison, Gardener to the Marquis of Ailsa, Culzean Castle, Maybole, Ayrshire.

Cinerarias.—Where seeds of Cineraria were sown as previously advised, the seedlings are ready for pricking out, and for this purpose boxes are usually employed, filling them with a good, open compost, and making it reasonably firm. If large quantities are required one or two boxes of each variety may be pricked off, or if only a limited number is grown several varieties may be used to fill the same box, labelling them in rows as the work proceeds to prevent confusion later. Grow them on in a cool house, shading them from hot sun until they are ready for transferring to three-inch or four-inch pots, when they may be placed in cold pits or frames resting on an ash bottom. Among the many fine varieties now offered, those with medium-sized flowers, that is, those mid-way between the Stellata and the large-flowered sections, are most appreciated, and they may be obtained in many charming shades of colour.

Sweet Peas.—These plants are developing rapidly, and as they will grow taller than ordinary Pea sticks, a further extension will be needed, and may be easily made by placing a few stout poles up either side of the rows, about eight feet high, and tacking, after straining, some wide-meshed sheep netting along both sides, encasing in the process the tops of the stakes already supporting the plants. This arrangement will keep the Sweet Peas erect until the end of the season, and the wide-meshed netting enables the flowers to be gathered easily. Where Sweet Peas are grown especially for exhibition, one fence of the netting would suffice, to which the growths may be tied, as after the tendrils are removed they must be secured to some support, and their side-shoots and early flowers suppressed until required.

Thinning Vegetables.—A variety of vegetables now need attention in the matter of thinning, and this must not be overlooked or the crops will be spoilt. Turnips and Beets should be spaced from six inches to eight inches apart in the case of those for early use, while crops for winter use should be allowed a distance of from ten inches to a foot apart. Spring-sown Onions may be left fairly close in the rows, as these do not grow very large, but are useful for flavouring, etc. So soon as the thinning of the Onions is completed, dust the rows on frequent occasons with soot, while the foliage is wet with dew, to deter the Onion fly from laying its eggs thereon. Carrots for early use should not be thinned too severely as these are often pulled when quite young, but later sorts should be allowed ample space to develop their growth. Where the Cabbage fly is troublesome, a weak solution of paraffin should be sprayed over the foliage and soil. The spray should be applied immediately after thinning the seedlings and repeated once or twice at intervals of ten days or so.

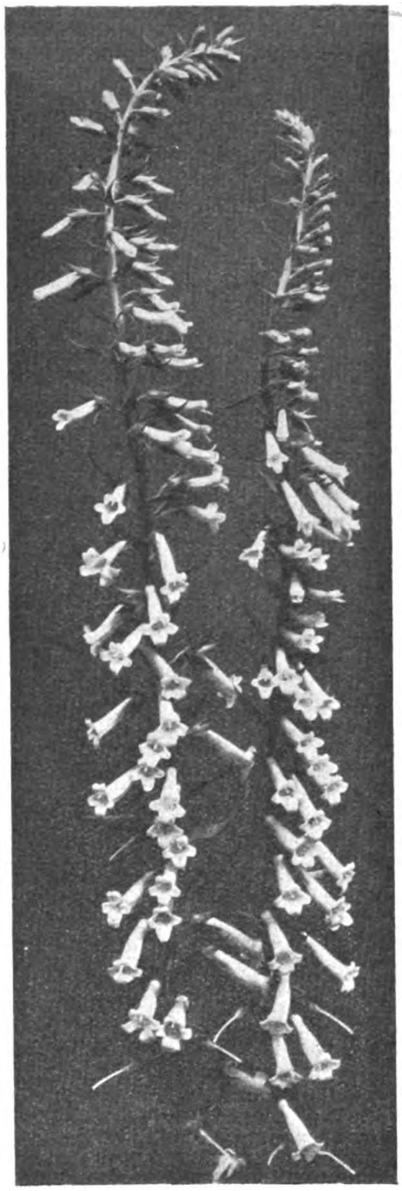

FIG. 228. DIGITALIS FERRUGINEA ROSEA.

R.H.S. Award of Merit, June 15. Flowers tubular, flushed with rose. Shown by Messrs. B. Ladhams, Ltd. Compared with the figure of D. ferruginea in *Bot. Mag.*, t. 1828, the plant illustrated above shows such marked differences as to suggest doubt as to the correctness of the name under which it was exhibited.

(see p. 445).

FLOWER GARDEN.

DIMORPHOTHECA.

The Cape Marigolds are very useful subjects for planting in parks and town gardens. There are several species in cultivation, but the annual types are probably the most popular at present, as they are fitting subjects for flower borders and beds. The ray florets which form the attractive part of the composite flower heads are usually pistillate.

Now that Dahlias are largely taking the place of Pelargoniums and similar plants in the flower beds of parks and gardens, it is very desirable to grow these or other annuals in the beds and borders so as to provide a display of flowers during the early part of June and July, and to act as a ground work for the Dahlias when they come into flower.

Dimorphotheca aurantiaca is probably the most popular of the three types now commonly grown, and it succeeds very well here in Bermondsey, where the atmosphere contains more soot, sulphur and other impurities than in most parts of London. The orange-coloured flowers make a fine display, and when planted with Coltness Gem Dahlias give a brilliant effect.

D. pluvialis is less exciting but none the less attractive; I admire it best mixed with D. aurantiaca, when the one adds glory to the other. The white flowers of this type, which seem to close at the merest suggestion of cloudiness or dusk, are white on the upper surface with a ring of purple at the disc; when closed they show a purple tinge on a creamy ground, giving a silky or metallic lustre. D. Ecklonis, a double white type—is also useful for summer display; seed germination, however, does not appear to be as satisfactory with this as with the two previously mentioned.

The Cape Marigolds are best treated on similar lines to other half-hardy annuals, *i.e.*, sown in gentle heat in February or March and pricked off, preferably, into pots, and gradually hardened off for planting out at the end of May, just as the flowers begin to open. If raised under glass in the autumn they are apt to become too leggy unless grown under very cool conditions. They may also be grown where sown, just as Asters are often grown, but such sowings should not be made until all danger of frost is over, as the plants are extremely sensitive to frost. These plants also make excellent pot subjects for the conservatory in the early days of summer. It is interesting to note that D. pluvialis was grown by Miller in the Chelsea Botanic Gardens in 1726. *W. H. G., Bermondsey.*

HARDY FLOWER BORDER.

SCABIOSA CAUCASICA

A very large percentage of failures with Scabiosa caucasica may be traced to late transplanting. On soils which are light, gritty, well-drained, and in situations where spring droughts are frequently trying, it is prudent to plant this Scabious during the second half of August or the first half of September. There are few gardens where it is wise to transplant Scabious in October or November, but often, when it is an item in a hardy plant border of miscellaneous character the Scabious arrives with the Heleniums, Phloxes and other plants which have no fastidious whims, and it requires no more than the average November and December conditions for the crowns and roots of the Scabious to decay in the ground.

Where soil inclines to heaviness, or the situation is low-lying and damp, it is infinitely safer to transplant in April, and, assuming the season is normal, April is better than either March or May, because the roots will be just active enough to take hold of the fresh soil without delay, and top growth will not be far enough advanced to suffer as it sometimes would be in May.

The popular belief is that a good, strong clump of any plant stands a better chance of success than a small one, but I would infinitely prefer quite a young plant of Scabiosa caucasica with one crown and a goodly number of young fibrous roots. Such plants become re-established without difficulty, whereas the big clump is generally an old one with a hard, woody rootstock and few fibrous roots. Such are the plants which become half rotten before they have been able to develop enough roots to set up a proper flow of sap.

There is no gainsaying the plants raised from seeds transplant with greatest safety, but reliance upon seedling plants frequently means that one has to be content with flowers of mediocre quality, for Scabiosa caucasica is extremely variable in form, substance and colour.

Stock of first-class forms or distinct varieties is propagated by offsets or single crown divisions, and it is such plants which, transplanted in April, will yield the finest results. *A. J. Macself.*

ALPINE GARDEN.

ARMERIA CAESPITOSA.

The charming little Armeria caespitosa, like most other flowers, is not absolutely perfect from every point of view. It is perfect in respect of habit, as it is one of the diminutive gems of the rock garden, with its small, dense tufts of narrow leaves, and it gives an abundance of flowers. But, unfortunately, the blooms are rather deficient in brightness, and they have been spoken of as being "washed out" in their pale pink. Nevertheless, it is a charming flower, and to see a number of plants growing happily, tightly wedged in the crevices of an almost perpendicular rock, is a sight which gives great pleasure to the alpinist.

The plant is a native of Spain, where it grows at a height of upwards of 6,000 feet, but it will flourish at low altitudes, as may be seen from the fine plants which have for many years adorned the rock garden at Edinburgh Royal Botanic Gardens. *S. Arnott.*

INDOOR PLANTS.

RAISING HIPPEASTRUMS FROM SEED.

The popularity of these magnificent plants, which are usually much in evidence at our spring shows, is a continuously increasing one, and Hippeastrums, or, Amaryllis, as they are commonly known in gardens, are probably grown to a larger extent at the present time than at any other period. That the cultivation of these flowers has become so extended is not to be wondered at, for their great value in enhancing the interest and attractiveness of the plant houses during the early months of the year can hardly be over estimated.

With even a moderate stock and a judicious course of culture, a succession of flowers may be had from the beginning of January until May, or, if it is preferred, a splendid display may be made with them at any desired period during the spring. It is true that, unlike some other classes of plants employed for decorative purposes, they are not continuous in flowering, but their flowering is so far under control that it can be regulated to meet the needs of the grower, and it cannot be said that they require much space in proportion to the number of flowers borne or the effect produced.

As regards the skill and attention necessary to have the plants in the best possible condition, it may be said that they can be grown with the same facility as the majority of plants with which the gardener has to deal, but while good cultivation is necessary to produce the best results, no method of cultivation can achieve this object with inferior strains.

Every grower of the flower should be a raiser also, for, besides providing a means whereby a stock of bulbs sufficient to admit of their being extensively employed for decorative purposes can be readily obtained at trifling cost, the raising of one's own stock is an intensely interesting matter. Varieties under name must necessarily be scarce and expensive; under the most favourable conditions, offsets, by which alone they can be increased, are produced at a slow rate, and when obtained, a comparatively long period is required for them to reach flowering size. Hippeastrums may be so readily raised from seeds that it is the most desirable method of increase, and if seeds are saved from good varieties or obtained from a good source, very few of the progeny will bear flowers of indifferent quality, whilst the majority will be of good form and colouring. Those plants now bearing pods should be stood in the lightest and most airy place in the stove or intermediate house and screened from brilliant sunshine to promote perfect ripening of the seeds.

Whether the seeds are saved at home or purchased, it is better to sow them so soon as they are ripe than to wait until the following spring, hence the present is the best time to purchase seeds; just as the new crop becomes available.

The seeds, if sown now, will germinate quicker and also give a larger percentage of plants than would be the case if sowing were deferred till the spring; moreover, nearly a year is saved in the time of flowering. Sow in five-inch pots that are well-drained and filled nearly to the level of the rim with a light, sandy compost. A Melon pit is an excellent place in which to place the pots; they should be stood on a firm base and be shaded with paper to retard evaporation until the seedlings appear. The soil must, of necessity, be maintained in a moist state, and when the seedlings have made three or four leaves they should be pricked off into five-inch pots, putting about six plants in a pot. During the autumn and winter they should be grown in a temperature of from 55° to 60°, and the roots afforded just sufficient moisture to maintain the foliage in a fresh state.

It is not necessary, or even desirable, to dry the bulbs off during the first winter, but should any of them show signs of going to rest, they may be stood on the floor and water withheld.

The whole of the plants, whether rested or not, should be potted off singly in the spring and for this purpose three-inch pots are the most suitable. They may be allowed to remain in these pots until the following spring, when they will need to be shifted into six-inch pots. They can be grown into flowering size in these pots and may remain in them two years. Frequent shifts and overpotting are decidedly injurious to Hippeastrums, and generally every second year is sufficiently often to repot them. The production of flowers is a considerable strain on a newly-repotted bulb, and if there is any sign of weakness it is wise to remove the scape when it appears, to enable the bulb to acquire strength.

The repotting of the plants should be done early in the spring, just before new growth commences. When repotted, the ball of soil should be somewhat reduced, and after all decayed roots have been removed, be returned to clean pots of the same size, or, if necessary, a size larger. The drainage of the pots must be sufficient to ensure it remaining in an efficient state throughout the time the plants remain in them. The compost should be of a rich nature and open in texture; nothing is more suitable than one composed of four parts rich fibrous loam and one part old hot-bed manure, mixed with a liberal sprinkling of coarse, sharp sand. The loam should not be sifted, but broken in pieces, used in a rather rough state and be pressed firmly about the roots.

In starting the bulbs for flowering, the grower should be guided by his requirements. If flowers are required very early in the season there is no difficulty in obtaining them with the aid of plenty of top and bottom heat, but the best time for the majority of cultivators to commence forcing is about the end of February. The bulbs then showing signs of activity may be selected to form the first batch and a succession may be maintained by introducing further batches at intervals of two or three weeks until the stock is exhausted.

As in the case of other bulbs, a thorough season of rest is essential, but they should not be kept so dry when resting as to cause the bulbs to shrivel. The drying off should be done gradually so that the plants will not experience a check. When water is withheld gradually the leaves will frequently remain green for many weeks after the roots have been dried off, and provided the bulbs are really at rest, this is an advantage rather than otherwise. *A. P. C.*

NOTES FROM EDINBURGH.

The rock garden is at present the centre of attraction with its masses of richly coloured Helianthemums, Phlox subulata vars., Veronicas and Dianthi, but special attention is directed to gems of recent introduction, namely Nomocharis pardanthina, N. pardanthina var. Farreri, N. saluenensis and N. Mairei var. leucantha.

These are natives of China, and in some respects resemble the Liliums in growth and habit but differ in flower structure. N. pardanthina, a robust little plant of nine to twelve inches high, produces from two to four rosy-pink, drooping flowers on its short, stout stem. In the var. Farreri, the whorled leaves are much narrower and the pale flowers have a few dark brown spots on the inside of the petals. N. saluenensis is conspicuous in having from six to nine flowers in a whorl, standing erect and facing upwards. This species is a good grower but variable in colour of flower, and may range from white to pink diffused with yellow. The petals have very small spots at the base, and in some forms a yellow centre gives an added attraction. N. Mairei var. leucantha is the most attractive of all, in that the petals are conspicuously fimbriated at the edge and evenly spotted all over with chocolate.

The members of this interesting family flourish best in a damp situation in a rich compost including plenty of leaf-soil. It has been found that the bulbs are inclined to go deeper in search of moisture, and one of the essential factors in preparing permanent quarters is good depth of soil. Plants should be raised from seeds sown in pots or pans in October, the seedlings being pricked out into frames in early spring, care being taken that the young bulbs are planted deeply enough to guard against drought. When two years old they may be removed to suitable situations.

In the sikkimensis section of Primula three very beautiful and noteworthy members are at present in flower. P. Waltonii, in a damp situation, is admired for its fragrant, glossy, port-wine-coloured flowers, powdered inside with white meal. It is a robust grower and an excellent plant for the pond side. P. microdonta alpicola, also a lover of moisture, is now in full bloom. Its attractive, nodding, pale yellow flowers resemble those of P. sikkimensis, hanging to one side of the stem. It is from twelve to eighteen inches high and very fragrant. Special mention must be made of the violet form of the last-named variety. A group of this most beautiful and fragrant form is seen to advantage in the rock garden, in a well-drained, moist situation. The violet-purple flowers have a thick powdering of meal inside which gives them a dull, waxy appearance.

Another much admired Chinese plant is P. nutans: this rare and fragrant species is far too uncommon in Primula collections. The mealy spikes of lavender-blue flowers stand erect above the pale green foliage to a height of eight to ten inches. Seeds should be sown every year to ensure a succession.

A rare species from the Rocky Mountains, Primula Rusbyi, is now richly covered with numerous farinose inflorescences which comprise umbels of bright rose-coloured flowers on nodding pedicels. It is a dwarf, compact little plant, six inches high, and may be increased without difficulty by seeds or by division.

The beautiful Chinese Papaver anomalum has tall, graceful, bright yellow flowers, and is now at its best. It looks most attractive when grown in large groups. The dwarf Papaver alpinum is also a useful member of this family, and this fine little species with its white, or sometimes pink, fimbriated petals makes it useful in brightening up any dry rocky surfaces in the rock garden.

To lovers of the Compositae, Achillea formosa will give satisfaction. On a dry, rocky face in the rock garden this feathery, grey-foliaged plant is flowering beautifully. Its large white florets and yellow eye give it a foremost place among the Daisy family from Asia Minor.

So much also may be written of the European Anthemis cinerea, which is white but more free in habit. Unlike Achillea formosa, it is easily raised for cuttings or seeds. Anthemis macedonica is also worthy of mention.

In a sunny position with plenty of moisture underneath, many plants of Rheum Alexandrae have sent up wonderful erect spikes of flowers. These, however, are inconspicuous individually, but this defect is fully compensated for by the large, overlapping, soft lemon bracts which surround them; this hardy Chinese species is unique rather than beautiful, but ought to be more widely known.

Between the stones of a dry wall Lewisia Cotyledon, a native of California, has found a permanent home (Fig. 231) and is growing and flowering remarkably well. Half-a-dozen scapes bearing panicles of white flowers, pink-veined down the centre, are borne well above the dense rosette of succulent leaves. This plant repays the grower for any trouble taken in its cultivation. It also does well on the flat, but requires good drainage and abundance of sunshine. L. Howellii is also an interesting and beautiful plant, with flowers of deep rose colour, rising in short, racemose cymes a few inches above its rosettes. The oblong leaves have curiously thin, crisped margins which give it an added attraction. *A. McCutcheon, Edinburgh.*

NOTES FROM WISLEY.

PERSISTENT rain during the summer months does not, as a rule, encourage free flowering. It s rather surprising therefore to find at Wisley that the majority of rock and herbaceous plants have surpassed themselves and are providing throughout the gardens a brilliant display of bloom.

The Irises on trial are now a fine feature but their beauty could be shown to still greater advantage if the plants were arranged in the form of an Iris garden, however simple, with suitable surroundings. There is such a large number of excellent varieties that any selection must be largely a matter of personal choice. Among others, Bruno, with broad, velvety falls of dark crimson, stands out, as does Romola, if only for its great size, while Chasseur, a very strongly scented variety, is conspicuous by reason of the varying depth of creamy yellow colouring seen in its flowers, the hafts of which are mottled with chocolate. A white or light coloured margin to the falls is a distinct feature of certain sorts. This is very noticeable in the case of Richard II, a comparatively dwarf Iris with white standards and dark violet-blue falls, which are rimmed with a narrow line of white. The maroon coloured falls of Marigold are similarly outlined with yellow. The colouring of Deuil de Valerie Mayet is most attractive but the shape of the flower is unsatisfactory. Narsouin is another prettily-coloured variety, but its flowers have suffered from a prank of the weather, for the recent rain has dissolved the purple pigment out of the old blooms and this has blotched and stained the yellow standards of the new ones, the effect of which is not unpleasing. The best variegated Iris in the trial is I. pallida aurea variegata which has pale, lavender-blue flowers and is blooming quite freely.

In addition to Bearded Irises however, are some plants of the remarkably floriferous Iris Sintenisii major and I. S. minor, between which little difference is apparent. There are also some hybrids of Iris chrysographes and Iris sibirica, few of which are so good as their parents.

Many Roses are now starting to bloom in the Rose beds and borders near the laboratory. These two sites have been re-shaped and re-planted with varieties which have been successful in the Wisley Trials for Roses suitable for garden decoration. Among the singles have been included Ethel James, Isobel and Pink Delight, while Polyantha varieties such as Crimson Orleans, Eblouissant and Yvonne Rabier and such hybrid teas as Betty Uprichard, Hawlmark Crimson, Mme. Ravary and Mrs. Bryce Allan are now coming into flower. Sweetly-scented Briars such as Lord Penzance's hybrids have also been planted and are flowering in company with Rosa rugosa reptans alba which makes a fine compact bush when it matures, and Blanche double de Coubert a double white rugosa. In the same border is the early-flowering Rosa Hugonis with yellow flowers and handsome foliage.

In the dry terrace walls around the laboratory a number of plants of Onosma tauricum are thoroughly established and are flowering extremely well. The pendulous clusters of yellow blossom and its preference for a dry and sunny position render this plant an excellent subject for wall gardening. Another yellow-flowered plant in flower in the walls is Hieracium villosum, the leaves of which are densely covered with silken hairs. Here also are masses of Helianthemums, rock Pinks and Campanulas which are taking the place of the Aubrietias. Many of the latter however, as a result of the wet weather, are likely to remain in flower for some time to come.

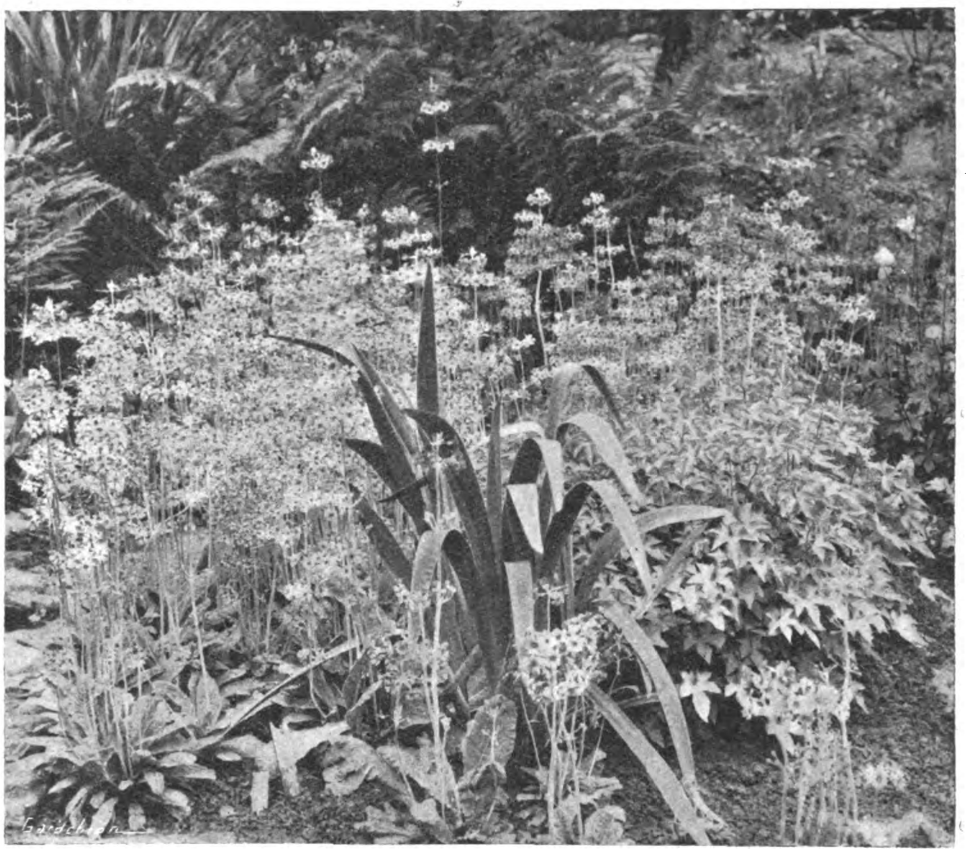

FIG. 229.—GROUP OF HYBRID PRIMULAS AT WISLEY.

The boggy portion of the Rock Garden is now a riot of blue and yellow occasioned by the flowering of Iris versicolor, I. Forrestii, Campanulas, forms of Mimulus and good varieties of Hemerocallis such as Gold Dust and Sovereign.

An equally good display is made by a mass of brick-red Primula hybrids (Fig. 229) including Red Hugh and Aileen Aroon, together with occasional plants of Primula helodoxa, Trollius and Giant Buttercups, while nearer the summit of the rock garden is an attractive splash of colour formed by the mauve-pink Geranium sylvaticum, running riot among plants of Cheiranthus Allionii and double Welsh Poppies. The unstudied effect of this grouping is very pleasing.

Not far from the foot of the specimen Cryptomeria japonica elegans is a group of the tall Meconopsis paniculata which grows to a height of about five feet and bears large sulphur-coloured blooms. Another plant of recent introduction in flower on the rock garden is Primula microdonta forma violacea which gained an Award of Merit on June 15. It was discovered by Captain Kingdon Ward and throws up a stiff stem one foot to two feet high, carrying a cluster of pendulous, violet flowers, with a white centre, after the fashion of P. sikkimensis.

Other discoveries made by Captain Ward are to be seen in the greenhouse adjoining the Carnation house and among them are blooming the yellow-flowered Primula Florindae which was awarded a First-Class Certificate at the Chelsea Show) and; figured in *The Gardeners' Chronicle* of June 12; Primula Cawdoriana which has also obtained an Award of Merit; P. Waltonii, with nodding flowers of dull purple, and a blue-flowered Onosma which, unfortunately, has not proved quite hardy in the open.

In contrast to these novelties there is in this house a plant of Salvia carduacea, the Thistle Sage, which was introduced just over seventy years ago. It has not, however, become generally cultivated although it is a handsome plant and perfectly hardy. A peculiar feature of this Salvia is the cobwebby covering which extends from the Thistle-like, radical leaves to the topmost whorl of its lilac flowers.

There are still some Saxifragas in flower in the Alpine House, including S. Cotyledon norvegica, some specimens of which look like dwarf trees when in flower; also S. Balfouriana and a pretty, red-flowered hybrid between S. Aizoon rosea and S. umbrosa primulina.

The mauve Conandron ramondioides is also in bloom here and as its name indicates, closely resembles a Ramondia. Other plants in flower include Erodium corsicum carmineum which will go on flowering throughout the summer and Geranium Traversii alba, which is extremely rare, although the pink-flowered type is quite well known. *J. E. Grant White.*

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WATER AND ITS USES FOR SPRAYING PURPOSES.

Any consideration of the question of soap for spraying purposes involves a discussion of water supply. Just as in human affairs health is largely dependent upon an adequate supply of pure water, so in matters horticultural success depends to a great extent upon the quality and quantity of the water supply. In the past the importance of horticultural water supplies has not been realised, and it is hoped that the following remarks may be of service to the grower in his battle with pests and diseases.

In all wet-spraying operations water is used as the carrying medium, and consequently the nature of the dissolved salts it contains will depend upon the source of supply. In turn, these dissolved salts will greatly influence the spreading and wetting power of the spray fluid, and also determine the extent of the subsequent pump and nozzle trouble.

Undoubtedly many thousands of pounds are wasted every year through ignorance as to the exact nature of the saline matter in a particular type of water. This waste is particularly obvious in the shape of soap scum, time lost in releasing blocked pumps, nozzles, etc., and ineffective results. Hence the necessity for technical knowledge on the subject.

The success obtained with any spray-fluid depends almost entirely upon its spreading and wetting powers, other things being equal; water by itself is a poor spreader, and when it contains dissolved hardness in the form of lime or magnesium salts its power of spreading is decreased. It is then necessary to overcome this resistance by the addition of soap or some other substance.

When soap is used with hard water a scum is produced, and this scum will continue to be formed until all the hardness has been removed—that is, if there is enough soap present. The following is an analysis of the soap used in a series of experiments:—Potash, 8 per cent., fatty acid 40-45 per cent., and moisture not more than 50 per cent. The table given below gives some idea of the results obtained with the various strengths of soap.

Surface Sprayed.

Strength used per 100 galls. of water.	Greased Plate.	Ivy Leaves.	
		Washed.	Unwashed.
1 lb	...Bad	...Bad	...Good
2 lb	... ,,	...Very Poor	...Excellent
3 lb	...Very Poor	...Fair	... ,,
4 lb	...Fair	...Good	... ,,
5 lb	... ,,	... ,,	... ,,
8 lb	...Mod. good	... ,,	... ,,
10 lb	...Good	...Excellent	... ,,
20 lb	...Excellent	... ,,	... ,,

The hardness of the water used in these experiments was 12·8 grains per gallon.

The resistance of the greased plate was found to be very nearly that of the washed Ivy leaf, and it will be noticed that to get excellent spreading it is essential to use at least ten pounds of soap to one hundred gallons of water. The unwashed leaves call for remarks in that they were more easily covered. The reason appears to be that the dusty deposit found on the leaves, especially in the neighbourhood of towns, is fairly adhesive and reduces the natural resistance of the leaf, and so facilitates in some way, as yet unexplained, the spreading of even dilute soap solutions. At any rate, it is well-known that old leaves are much easier to cover than newly unfurled foliage.

In the photograph (Fig. 230) are shown six greased plates, all treated in the same manner, but sprayed with different concentrations of soap in order to illustrate degrees in efficiency in spreading:—1, excellent; 2, good; 3, moderately good; 4, very fair; 5, poor; 6, bad

As previously explained, the presence of hardness in the water greatly reduces both frothing and spreading, and excessive hardness is likely seriously to affect the results, so much so that in Wisbech growers who depend almost entirely on salt dyke water are unable to use soap or soap-containing washes.

In wet-spraying the carrying material is water and as this forms the major portion of the spray or wash, it is essential to have some knowledge of the natural constituents of it, if the maximum value of the insecticidal or fungicidal ingredients is to be obtained.

Soft or rain water is, of course, the ideal type to use for spraying purposes, but on a large scale it is impossible to secure adequate supplies, thus necessitating the utilisation of pond, river, surface drainage, subterranean, or other sources of supply. In the different fruit-growing areas one finds entirely different types of water, and the dissolved constituents in such are influenced by the subsoil strata through which it has to percolate.

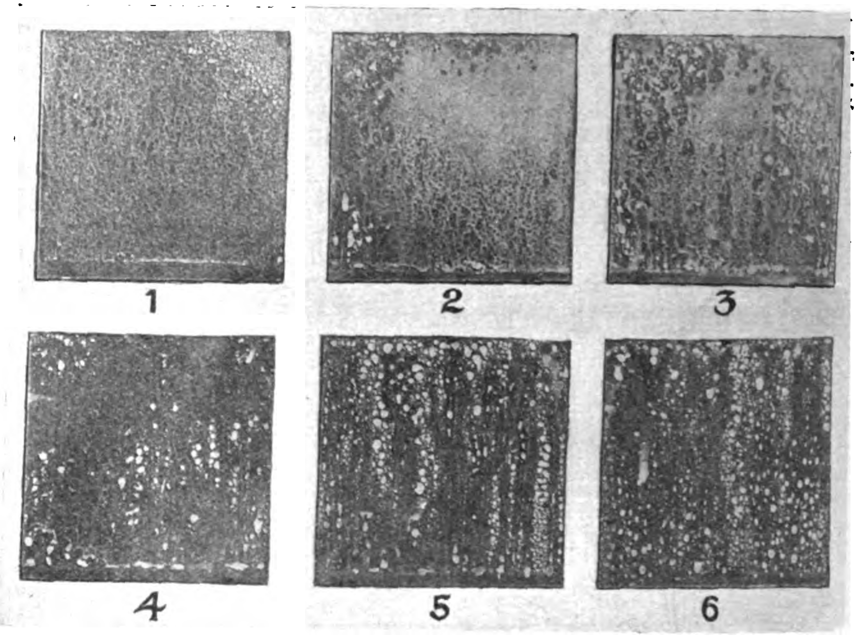

FIG. 230.—GREASED PLATES SHOWING THE SPREADING EFFICIENCY OF WATER TREATED WITH DIFFERING AMOUNTS OF SOAP.

There are various methods in use for softening water, the most expensive being the provision of a water-settling tank of large capacity. The hardness, in the form of chalky sludge, settles at the bottom, and on being removed, leaves the water suitably soft. Such methods are termed chemical methods, because the final result is obtained by using materials such as soda, milk of lime, etc., to throw down the hardness by chemical reaction.

In the Wisbech area, where much of the land is reclaimed, one would expect to find a certain amount of salt in addition to the ordinary lime salts. The growers in this locality are almost entirely dependent upon sub-soil drainage, which collects in artificially-made canals or dykes, and in consequence of the concentration of the saline constituents is frequently altering. The presence of salt is always undesirable, because if present in any quantity it causes the salting-out of soap used in spray-fluids.

In Kent, considerable difficulty is experienced when spraying owing to the presence of hardness in the water. This hardness may be caused by the presence of calcium bi-carbonate (that is, dissolved chalk), sulphate of lime, and salts of magnesia as a result of passing over subterranean strata of magnesian limestone. Consequently, when the soap is dissolved in such water, it is used up in softening or removing the hardness by forming insuluble lime and magnesian soaps. It is this scum or curd produced by the latter which gives so much trouble in clogging the spray nozzle.

Water-Softening Methods.

Soap is unquestionably an expensive material to use for water-softening. In any case, a more economical way is to first ascertain by analysis what the hardness is due to. It is then possible to add certain chemicals which react and cause the precipitation of the hardness in the form of chalk, which gradually settles out. For examplo:—bi-carbonate of lime and lime give chalk water; sulphate of lime and washing soda give chalk and Glauber's salt; sulphate of lime and phosphate of soda give phosphate of lime and Glauber's salt.

The object in any form of water-softening consists essentially in the removal of the dissolved constituents in the form of an insoluble precipitate, with the formation of other soluble salts which must not have a deleterious effect upon any spray fluids which may be subsequently used.

Water-softening does not eliminate the necessity for using an effective spreader with such substances as lime-sulphur, arsenate of lead, etc., because, although the water may have been softened chemically, when used for diluting down, say, lime-sulphur, the surface tension is raised, which materially affects the ultimate spreading power of the spray and its efficiency.

Before proceeding with any form of water-softening it is very desirable to have a reliable opinion as to the nature of the hardness. There seems little doubt that it would pay growers in the long run, where large areas are concerned, to adopt some form of water-softening treatment if the water is particularly hard. Many growers under glass experience much trouble from pipe-blocking in their heating systems, as a result of the hardness separating out in the boiler tubes, and the periodical replacement of these must be an expensive penalty to pay.

In the United States and Canada much research has been carried out in what may be called physical methods of increasing the spreading properties of insecticides. The materials so used have been called spray-spreaders. They do not remove the hardness from the water, but by a complex physical process which cannot be explained here, are able to overcome the natural resistance of leaves, pests, etc., and so increase the covering power of the wash. Substances such as milk, soluble caseinates, saponin and starch paste are examples. Also, these materials possess the advantage, which soap does not, of forming compatible mixtures with most insecticidal and fungicidal ingredients. For instance, soap is not recommended for use with arsenates, lime, sulphur and copper sprays on account of the risk of chemical reactions taking place and producing substances harmful to the plants.

SPRAYING HINTS.

A few other facts may be given here in regard to spraying. High pressure at the spray-nozzle is, of course, an important factor for successful spraying operations in overcoming the resistance in conjunction with the spreader. This should be about 100-150 pounds per square inch.

When using lead arsenate it is not advisable to have too good a spreading, as the arsenate may run off and accumulate on the edges of the leaf-surface.

A fine mist spray should be used for stomach poisons and a coarse nozzle for contact and cover washes.

If the source of water is entirely unsuitable for spraying purposes, it might be well to consider the adoption of dry-dusting methods, though it is not advisable when the application of lead arsenate is concerned. For the control of sucking insects, and even young caterpillars, it is well worthy of trial, because although the initial outlay may be higher, yet the increased cost justifies itself in the saving of time and labour.

Many manufacturers offer for sale soap with fatty acids ranging from 35 to 40 per cent., and at the same time declare that only four pounds of soap is necessary to get a complete wetting of either leaves or insects. It can be definitely stated here that, in order to secure the best results from spraying, where soap or any wash containing soap is used, the concentration of this particular ingredient should be at least ten pounds to one hundred gallons of water. *Theodore Parker.*

THE GENUS MECONOPSIS.

(*Concluded from p.* 439.)

POLYCHAETIA.

HOOKER's sky-blue plant was apparently lost to cultivation or else it faded away. One knows how prone the sky-blue Poppies are to degenerate in colour unless the conditions are very much to their liking; and possibly something of the sort befell M. simplicifolia. Either a particularly revolting variety, or another plant altogether, was grown under the name of M. simplicifolia. When therefore the sky-blue form was re-introduced, it became known as M. simplicifolia var. Baileyi; this must not be confused with M. Baileyi, which is a very different plant.

M. SIMPLICIFOLIA was originally discovered in Nepal by Wallich, in 1819. Since then it has been found eastwards throughout the Himalayan range, and in Tibet, north of the Tsangpo. Sir David Prain thinks it is probably a Tibetan plant which has crossed the passes and appeared on the southern slopes of the Himalaya; and its discovery by us so far north rather bears this out. M. simplicifolia, according to the figure in the *Bot. Mag.*, has six sky-blue petals, filaments pale blue, anthers yellow, style and ovary green.

In Tibet I collected, in the drier country, north of the Tsangpo bend, a plant, K.W. 5,737, which agreed with M. simplicifolia var. Baileyi in all respects save one. There is no mention of fragrance in any of the plants called M. simplicifolia, so far as I know; K.W. 5,737 is sweetly fragrant.

South of the Tsangpo bend on the Assam Himalaya, northern flank, I collected a scentless, purple-flowered plant, otherwise like M. simplicifolia in all respects (K.W. 5,855). On the southern flank of the same range, and quite close, I collected, in fruit, an apparently similar plant (K.W. 6245). This plant, however, differed from our original M. simplicifolia (K.W. 5,737) in its longer style, and also in producing twice as many scapes, namely six to eight, in place of three to four as usual in M. simplicifolia. Nevertheless, at the time I regarded K.W. 5,855 and K.W. 6,245 as identical—they were found within four miles of each other, though on opposite sides of the pass—whatever their relation to M. simplicifolia might be. It now appears that if they *are* identical, they are not the same as K.W. 5,737, which is M. simplicifolia, though they belong to the same set, 'Grandes.' Seeds of both were included under the one number, K.W. 5,855, I believe, and there have come up at least some plants which are not K.W. 5,737.

M. SIMPLICIFOLIA var. BAILEYI grows at 12,000-14,000 feet, on the fringe of the alpine region, hardly extending higher than the last bush Rhododendrons. It likes a well-drained, loamy soil, preferring steep banks and the shelter of bushes, though it will not brook heavy shade.

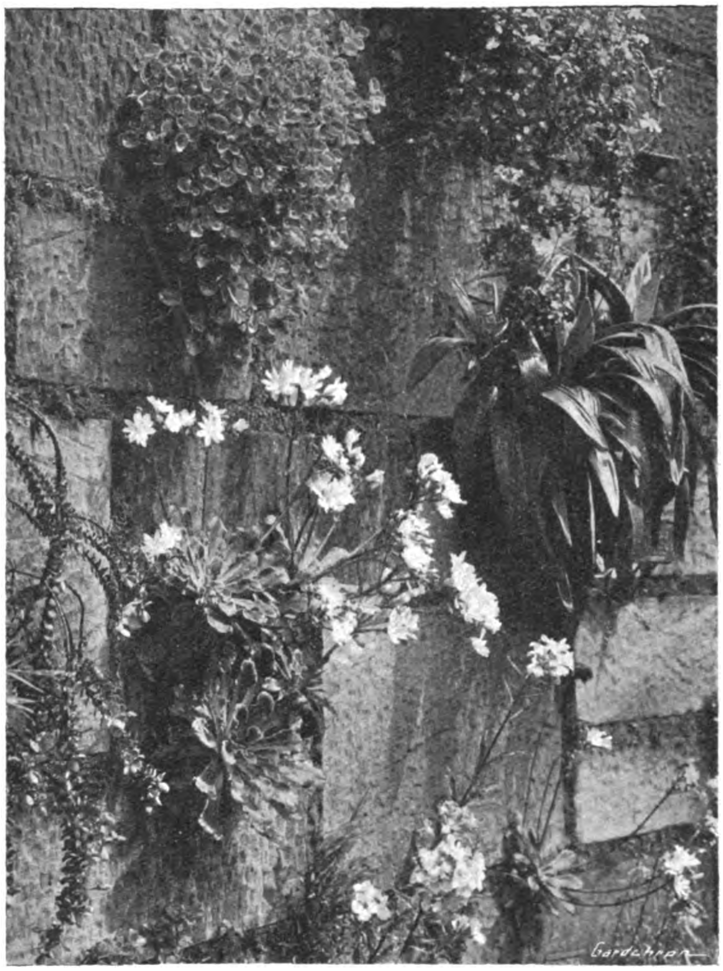

FIG. 231.—LEWISIA COTYLEDON GROWING IN A DRY WALL IN EDINBURGH BOTANIC GARDEN.
(see p. 457.)

K.W. 5,737 comes from 14,000 feet; K.W. 5,855 from about 12,000 feet; under these conditions, K.W. 6,245, though also an alpine, from 13,000 feet, scorns any sort of shelter, preferring the open rock screes. And whereas K.W. 5,737 comes from the dry-winter ranges, flowering the first week in June, K.W. 6,245 is found only on the wettest-winter, snow-clad ranges, and is still buried under snow at the end of June—that is why we did not see it in flower. Probably it flowers in July, though possibly as late as August. Seeds were ripe in mid-October.

It will be noticed that the 'Grandes' fall naturally into two groups: (i) a yellow-flowered group, the flowers borne on short, simple pedicels usually on a main stem, which, however, may be checked and fail to develop. The species are M. integrifolia, M. pseudo-integrifolia, M. brevistyla, with the varieties of the last two collected in Tibet; (ii) a blue- and purple-flowered group, the flowers solitary on long basal scapes. Species, M. simplicifolia, M. quintuplinervia, M. punicea, and M. grandis. These two groups might conveniently rank as separate aggregates, the name Grandes being retained for the blue-flowered group, while those with yellow flowers and compound stems would be separated from them under the name Integrifoliae.

TORQUATAE.

The diagnostic character of this group is the well-developed Papaver-like disc which crowns the capsule. There are only two species.

M. TORQUATA is not in cultivation.

M. DISCIGERA is a polycarpic, yellow-flowered species, introduced into cultivation by Edinburgh, probably raised from seed collected by Cooper in Bhutan It is a rare Himalayan plant, known also, like M. grandis, from a single high pass in Bhutan. If still in cultivation it is certainly very uncommon.

ROBUSTAE.

Biennials with a persistent crown of leaves which precedes the development of the tall, central branching stem. In the first year only the crown of leaves develops, and this persists through the winter. After flowering, the whole plant dies away. These are, after M. latifolia, the blue Himalayan Poppies *par excellence*—though some of them are yellow-flowered! They are magnificent plants, easily grown, and coming readily from self-sown seed; hence they are deservedly popular. Doubtless the fact that they come from comparatively low altitudes, below the forest line, and often from woodland situations, has a good deal to do with their happiness in this country. In Scotland and Ireland they flourish exceedingly.

Sir David Prain included five species, M. superba, M. paniculata, M. robusta, M. napaulensis, and M. Wallichii; but for seasons which will presently appear, it is better to reduce these to three, M. paniculata, M. robusta and M. Wallichii.

M. PANICULATA is a yellow-flowered plant of the Sikkim Himalaya, where I have seen it in fruit in open patches of forest below the Nathu La, at 11,000-12,000 feet altitude. It is often confused with M. robusta. According to Farrer, M. paniculata of catalogues and of *Flora and Sylva* is M. robusta; though possibly catalogues have discovered their indiscretion since Farrer wrote; while M. napaulensis (or, as it is usually, but erroneously written, nepalensis), is M. paniculata.

M. 'NEPALENSIS' of gardens, is, in my experience, a tall, yellow-flowered plant, clearly either M. robusta or, as Farrer states, M. paniculata; because true M. napaulensis has, after endless discussion and research, at last been practically identified with M. Wallichii, var. fusco-purpurea. In other words, M. napaulensis no longer exists, the other name having priority; for which we may be devoutly thankful.

However, there really is a M. PANICULATA, and it is in cultivation, as we have seen, under one or more aliases. It grows five feet high, bearing four or five dozen smallish, four-petalled, yellow flowers with purple stigma and green style. The leaves are sea green with pale hairs.

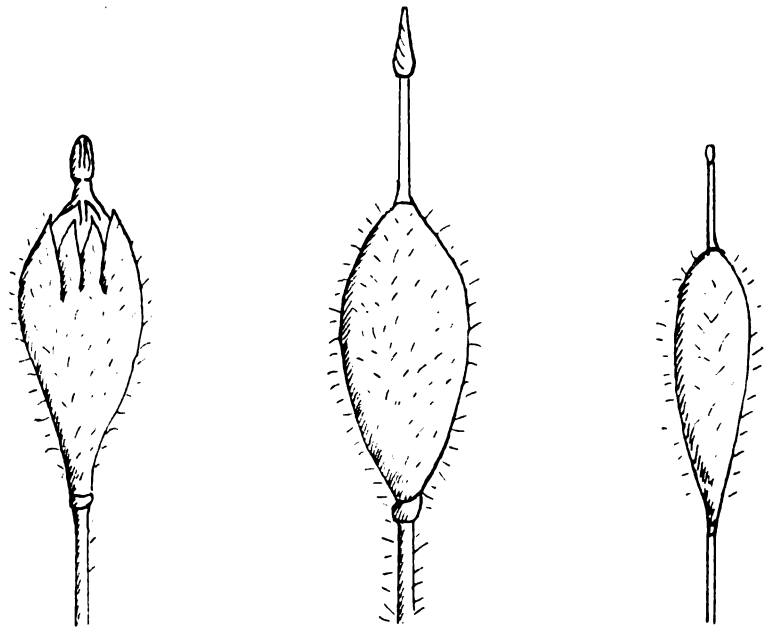

FIG. 232.—CAPSULES OF MECONOPSIS.

Left, M. Cawdoriana (K.W. 5751), × 2; centre, M. Prainiana (K.W. 5909), × 2; right, M. Florindae (K.W. 6038), natural size.

M. ROBUSTA is likewise a tall plant of three to five feet, with pale golden or yellow flowers, solitary in the axils of bracts, forming a loose raceme; thus it is easily distinguished from M. paniculata, which has simple or compound cymes in the axils or bracts. It is figured in the *Bot. Mag.*, tab. 5,585, under the name M. nipalensis. The leaves are a darker green than in M. paniculata, and the hairs more yellow.

M. WALLICHII is, at its best, one of the loveliest species of all. It has sky-blue flowers, borne in large numbers on a tall, branching stem; leaves more divided, darker, and more golden, with longer hairs than in M. robusta or M. paniculata, and also a longer style. It follows nearly a month later than either of the above, at least, in northern Ireland. There M. Wallichii flowers in June-July, M. paniculata in May-June. All three are gluttons for water.

M. Wallichii is very widely spread in the Himalaya, being found from Nepal to Upper Burma and Szechuan. There are two well-marked varieties, var. typica, with sky-blue flowers, and var. fusco-purpurea (M. napaulensis, 'nepalensis' 'nipalenisis,' etc.), with purple flowers. As is well known, those species having normally blue sky-blue flowers, to whatever section they belong, are apt to vary both to purples and to reds, and occasionally to white, though never to yellow.

M. Wallichii, var. fusco-purpurea, is not worth growing; but, unfortunately, one can never be quite sure that seeds, even when saved from the best sky-blue forms, will not give rise to a certain number of purple-flowered forms. There are even cases on record where both coloured flowers were borne by one plant.

The colour of M. Wallichii is not quite so true as that of M. latifolia; the filaments are pale purple, anthers golden, style and stigma green. A clump of its four-foot, golden spires the axils of the uppermost leaves crowded with compound cymes of dazzling, blue flowers, while from the lower loll flat, golden-green buds with pale blue insertion, is a brave sight.

The species is perfectly hardy, in the north and west at any rate. I have seen magnificent clumps of it in Ireland, growing in half-shade on the edge of the wood; it needs shade.

The great blemish to these compound-stemmed Poppies, apart from their short life, is the cymose inflorescence, whereby the flowers open from above downwards—as in fact they do in all species, even those with apparent racemes. When they first open, and the summit of the spire is crowded with flowers, they are striking objects; but by the time the tide has flowed half way down the stem, and is just beginning to ebb, the plants have a rather untidy appearance, with their naked capsules at the summit, ragged flowers minus a few petals below, and complete flowers below that. But this, after all, is a trivial point. The Himalayan Poppies are glorious plants, well worth a trial in any garden. There are plenty to choose from, and if some fail, others will succeed.

There remains M. SUPERBA—M. napaulensis having disappeared, becoming M. Wallichii on transmigration. If M. superba remains in the 'Robustae' M. Baileyi and M. betonicifolia, which have a close family likeness to it, must be included in 'Robustae,' also. It seems better to remove M. superba altogether, and to make it the nucleus of a new sub-secton, 'Superbae,' which would include M. betonicifolia, transferred from 'Cumminsia,' and M. Baileyi transferred from 'Bellae.' The former is a purple- or blue-flowered, big-leafed plant of Yunnan, which, so far as I know, is not in cultivation. M. superba is a rare Bhutan plant with white flowers—also not in cultivation.

M. BAILEYI (K.W. 5,784), is perennial, about three feet high, with large leaves, petiolate, below, sessile above, and nodding, sky-blue flowers, on long axillary pedicels. There are only four petals, as in 'Robustae,' generally. The anthers are orange, stigma pale green, star-shaped, with five flat rays, almost sessile, forming a disc; ovary green, covered with silky, golden brown hairs. It grows under bushes in deep shade, in light sandy loam, at 11,000 feet, and will probably be perfectly hardy in Britain. Coming from only a moderate elevation, it enjoys a climate not so dissimilar to our own; and being a wood nymph, it will not suffer such vicissitudes of temperature and humidity as fall to the lot of a plant in the open. Moreover, it has the supreme merit of being perennial; and though the flowers lack the fragrance of M. latifolia in other respects—foliage for instance—M. Baileyi is the better.

Seeds of M. Baileyi sent to England in 1924, germinated freely. I also sent seeds to Lhasa, and to Major Bailey in Gangtak (Sikkim), where he has successfully raised it. It is pleasant to think that this fine species, which is undoubtedly a great acquisition, should have been discovered by and named after one who has done so much for the exploration of Tibet.

Our new group, 'Superbae,' then, has this to recommend it. The three species agree in habit and inflorescence, and especially in foliage, all of them having long-stalked, basal leaves, and sessile, clasping, stem leaves, with broadly crenate margin. The under-leaf surface is a peculiar greyish-green, conspicuous in dried specimens; they are all perennial.

M. betonicifolia and M. Baileyi are certainly very much alike at first glance, both having similar habit, with sky-blue flowers and large crenate leaves; but they can be distinguished by botanical characters, M. betonicifolia having a much longer style, the stem leaves not auricled at the base, and the capsule almost glabrous. I have not seen M. betonicifolia growing wild—it appears to be local in Yunnan and not common; but there are some good specimens in the Kew herbarium, collected by Mr. J. Rock.

CHELIDONIFOLIAE.

Perennials with lobed leaves and slender, branching stems. There are two species, M CHELIDONIFOLIA and M. OLIVIERIANA. The former alone is in cultivation. It is a tall, almost bushy plant, with small yellow flowers, not very showy, and with leaves like a Thalictrum; it is uncommon in cultivation, nor need we much concern ourselves about it. The plant is quite hardy in northern Ireland, but I have not seen it anywhere else. It was originally introduced through Glasnevin, from seeds collected probably by Wilson. I found no species of this section.
F. Kingdon Ward.

SOME GARDENS IN SOUTHERN IRELAND.

THROUGH the kindness of a friend, I recently had the opportunity of motoring to several gardens in the South of Ireland, which otherwise are difficult of access.

ADARE MANOR, LIMERICK.

Our first call was here, and although not typical of the milder conditions further south, it was encouraging to find a private garden still kept in good order, with the usual indoor features well maintained. Carnations, both perpetual-flowering and Souvenir de la Malmaison, were in fine condition, and excellent crops of Melons, Cucumbers and Tomatos coming on. Vegetables are extensively grown in the open, and considerable breadths of early Peas were, already in mid-May, well advanced. Sweet Peas out-of-doors were remarkably strong, and fine sprays of blooms from indoor plants had been cut for some time.

The soil, being calcareous, is not well adapted to ericaceous plants, or those from Chili and New Zealand. There is, however, some fine timber near the Manor, notably a magnificent specimen of Cedrus Libanii close to the river. The behaviour of the Douglas Fir here was curious, some few specimens looked green and vigorous, others were distinctly yellow and unhappy, as is usual where lime is present in the soil. The one time famous Osier beds have fallen on evil days and are no longer cultivated, but many, if not most, of the old stools remain, representing what was one of the finest collection of commercial Willows in existence.

MUCKROSS ABBEY, KILLARNEY.

This, the home of Mr. Arthur Vincent, is charmingly situated near the famous lakes. Apart from the great natural beauty of the surroundings the outstanding feature here is the large natural rock garden. Very little of it has been artificially built, nearly the whole of the rock having been laid bare by removing the soil and scrub overlying it. The rock is a limestone outcrop and the beautiful grey stone has been water-worn into the most wonderful hollows, shelves and ravines. The large extent of rock thus exposed has made bold planting both imperative and effective.

Large masses of Genista hispanica made a wonderful display on high, prominent places, and generous plantings of various Pines and other dwarf Conifers give a realistic appearance to the whole scheme. Big colonies of good forms of Heuchera, Geum Mrs. Bradshaw, and similar garden plants are effective without being unduly obstrusive. True alpines, however, receive chief recognition, and the familiar genera, Saxifraga, Primula, Gentiana, Androsace, Ramondia and many others are well represented.

In the grounds many new Rhododendrons are being planted, both species and hybrids, and a good collection of Bamboos has recently been planted and will be a feature of great beauty in a few years.

DEREEN, KENMARE.

This, the Irish residence of the Marquis of Lansdowne, is one of the most noted of Southern gardens. Although, like many others, it suffered during the period of civil unrest, climatic conditions are so favourable that Nature will very soon restore the finest features: in fact the difficulty is to keep the stronger plants from overgrowing the weaker ones.

Bamboos here, as elsewhere in the south, are prominent, and although May is not a good month to see them, one could not help noticing their vigour—tall, strong canes, the younger ones just commencing to branch. Arundinaria aristata was frequent as well as A. Falconeri, A. japonica, A. nitida, etc.; generally Arundinaria was more frequently met than Phyllostachys, but time forbade a close examination of the whole collection.

Rhododendrons are well represented both in species and garden hybrids. Grand old specimens of R. arboreum and its early hybrids were out of flower, as indeed most of the species were, but there was abundant evidence of the fine display made by R. Loderi and others; R. decorum was in good bloom and promises to be one of the best of the large-leaved Chinese species.

Numerous other specimens of Mr. Wilson's early introductions were also noted, and garden varieties of Rhododendrons, such as Pink Pearl, were marvellous. Embothrium coccineum was fortunately in full bloom, and only those who have seen it in its glory can appreciate the wonderful display made by the scarlet flowers. Seeds are often produced in the south, and seedlings have been raised at Glasnevin, but, unfortunately, we are too far east, in addition to being on lime, to grow Embothrium successfully.

Tree Ferns, particularly Dicksonia antarctica, revel in the mild, equable conditions of the south, and numerous tall specimens with wide, spreading fronds are a feature. It was still more interesting to see how young plants from naturally-sown spores were springing up in the ditches, which, here and there, have been made to carry off surface water. Several of the younger specimens now planted in good positions had been obtained in that way.

Lomatia ferruginea, ten feet or more high, makes a handsome shrub, with Fern-like leaves, rusty-coloured above and glaucous-white beneath. Kalmia latifolia grows so luxuriantly in this garden as to be almost unrecognisable; wonderful specimens, rivalling in proportions the native Arbutus, were quite frequent. Such shrubs as Griselinia littoralis attain a height of twenty feet or more, with tree-like stems. Several species of Eucalyptus such as E. cordata and E. amygdalina have attained the dimensions of large forest trees, but I had no means of making accurate measurements. Among other trees and shrubs were fine specimens of Tricuspidaria dependens and Eugenia apiculata, but they are typical of many other southern gardens.

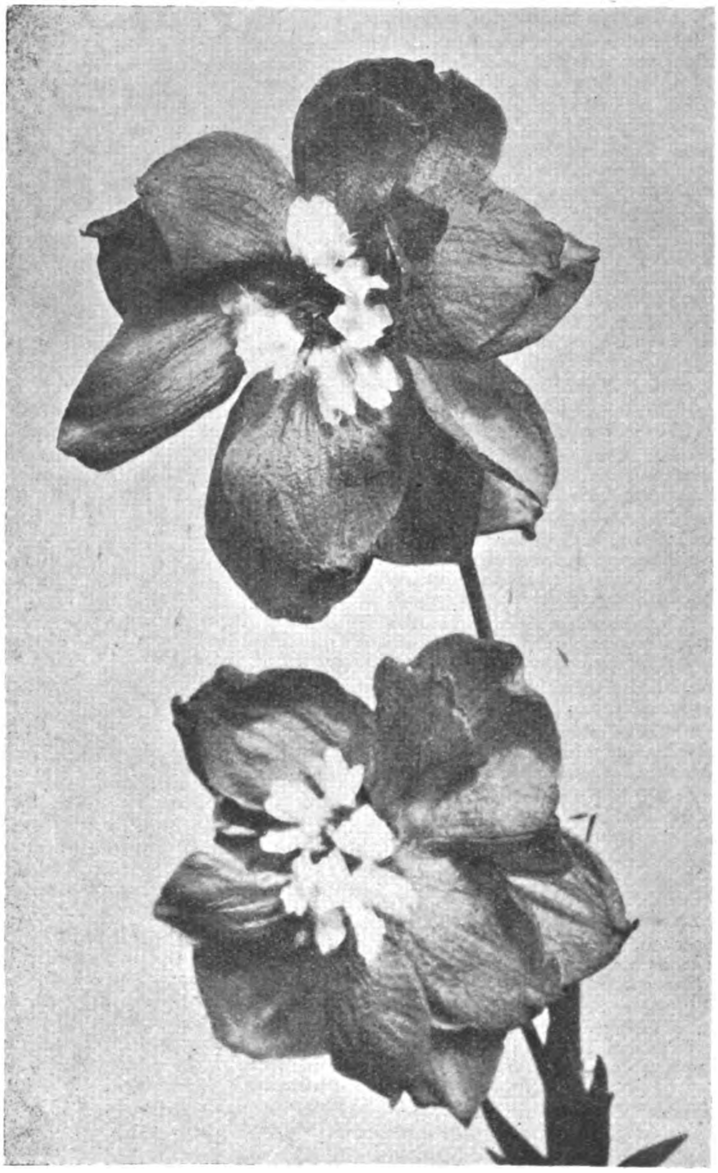

FIG. 233.—DELPHINIUM VIOLET ROBINSON.

R.H.S. Award of Merit, June 15. Flowers deep blue, with white centre. Shown by Messrs Blackmore and Langdon (see p. 445).

ROSDOHAN PARKNARILLA.

This estate, the property of Colonel Heard, is really a promontory jutting out into the Kenmare Estuary. It can be reached from the Great Southern Railway's Hotel by walking round an inlet for about a mile, or, more quickly by motor boat across the bay. Here, again, I found numerous evidences of the mildness of the climate and the remains of interesting trees and shrubs, many of which, however, had suffered during the troubled times. One of the most striking shrubs growing in the open, was Hakea saligna, the great bushes being as big as Laurels. Tall specimens of Olearia argophylla were covered with large panicles of white flowers. Tree Ferns and Bamboos also flourish here and I found a fine specimen of Cyathea medullaris with well-developed fronds showing the typical, shining, black rachis. The Silver Wattle (Acacia dealbata) and the Black Wattle (A. melanoxylon) make fine trees, particularly the latter, which I was informed has been a mass of bloom earlier, visible from far out in the bay. Mention may also be made of Fuchsia Riccartonii, which is one of the most accommodating and beautiful of all shrubs. We met it everywhere, as hedges, in shrubberies, and in isolated specimens, now towering over dwarfer plants and anon growing up between the branches of trees, and already well in flower. Apparently this Fuchsia flowers in the south of Ireland almost perpetually, and when in full growth must rival in beauty even Embothrium and Tricuspidaria.

GARINISH PARKNARILLA.

This, an island lying off the mainland and west of Rosdohan, belongs to Lord Dunraven. Here sub-tropical vegetation is seen at its best and nothing troubles but wind, which here and there finds a passage through the luxuriant growth.

Tree Ferns, already so often mentioned, are grown in great quantity. A beautiful glade of considerable extent shows many large handsome specimens on both sides of the walk. They are all Dicksonia antarctica, the stems a mat of healthy roots showing the white, growing tips, symbolical of perfect health. Here, again, they are naturalising themselves in the ditches, and additions to the plantation are made therefrom.

Associated with the Tree Ferns are large, handsome masses of Woodwardia radicans with fronds six feet long, and equally vigorous clumps of Lomatia megallanica. Palms are represented by handsome specimens of Trachycarpus Fortunei, tall, and in fine health. Cordyline australis rivalling the Palms in height and effect, were all showing flower, and add greatly to the subtropical effect. A recent importation of the New Zealand Palm, Areca sapida, was interesting and already signs of growth were evident. Drimys Winteri in full flower and over thirty feet high was a sight to be remembered. Pittosporum Mayi is represented by a fine specimen thirty feet high, P. eugenioides variegata is of about the same size, while a plant of P. Tobira, eight feet high, was covered with fine white flowers. Olearia Traversii grows twenty feet tall, and Hoheria populnea, eighteen feet tall. A huge mass of Gunnera scabra composed of many crowns and with leaves already three to four feet in diameter, was a feature in a low damp position. Near by it, the native Osmunda regalis was five feet high, though the fronds were only half developed. I was informed that it is eight feet high when fully grown.

COLONEL HARTLEY'S GARDEN, SNEEM.

Here many of the trees and shrubs already met with were represented by fine specimens. Bamboos in a bay sheltered from winds were particularly fine, Arundinaria being again the prominent genus, though Phyllostachys aurea and P. castillonis were also noted. Acacia dealbata, as elsewhere, was in vigorous health, also Tricuspidaria dependens.

Gunnera was even more luxurious here, and I was informed that the leaves measure ten feet across when fully developed. Woodwardia radicans was particularly luxuriant and is very handsome when seen in such fine condition. A row of Cordyline australis was conspicuous, the stems clothed with Clematis montana in variety. Huge clumps of the so-called Lily of the Nile (Richardia africana) were a striking feature, the leaves and flowers being five feet high and the clumps nearly as much through. This plant seems perfectly at home in the south, and numerous clumps in flower were noticed, even in cottage gardens.

Many New Zealand, Chinese and Chilian plants were observed, and it was evident that recent introductions are not being neglected, but the main features were those of southern gardens generally, where in days past the owners took delight in planting what in most places are regarded as greenhouse plants.

It was too early in the year to see the native flora at its best, but in the Killarney district all rocky places in the cliffs were full of Saxifraga umbrosa in full flower. In many places the roadsides and bogs were blue with Pinguicula grandiflora, accompanied often by Pedicularis sylvatica. Osmunda regalis was prevalent in ditches and moist places everywhere. *J. W. Besant, Glasnevin.*

APIARY NOTES.

Up to the time of writing these lines, which are, of necessity, prepared a considerable time before publication, the weather has been nearly as bad as it could be—from the bee-keeper's point of view. Instead of busy stocks on twenty frames, overflowing with bees, and ready to gather hundredweights of honey, bee-keepers have had much to do to keep stocks alive. One large bee-keeper in the New Forest writes me that in the first week of June some stocks had to be fed.

Remember that all the early blossom is over, all the fruit, all the Oak, the Sycamore and the Maple. The pity of it is that the blossom was bountiful, and on one or two days the flow of nectar was heavy, but, for the most part day followed day with no honey weather at all, and the brood nest instead of expanding actually contracted.

Now this means most careful management if any crop at all is to be gathered. A swarm at any time is a calamity to the bee-keeper but doubly so under such conditions. By the time these notes are printed every bee in every hive must be there to do full duty or no surplus will result. Yet increase is generally desired. How is this to be accomplished in such a year as this? I know of only one satisfactory way and it follows upon the article I wrote last. Brood that is only hatching by the time the honey flow is at its height, or brood that is not hatched at all by that time, can play no part in the gathering of the harvest. Nor do such bees materially strengthen the stock for winter. They do make, however, most valuable material for increase.

It is wise, therefore, to take four or five frames of sealed brood, with adhering bees, and with additional bees shaken from, say, a couple of frames more, place them in a new hive, on a new stand, and do one of two things:—give them either a ripe queen cell from a hive that is forming queen cells, or, better still, send to a reputable queen breeder for fertile queens according to the number of divisions you make. Always remember that good stock costs less than poor, and just as the farmer buys pedigree animals or fowls, and finds it profitable to do so, in the same way, it behoves the bee-keeper to obtain strains of bees better and better than those he has in his own yard.

Only from long experience will a bee-keeper learn how much a good strain means. A bee is a bee to most people, but that is a poor half of the tale. One hive will give a fine return, another no return at all. Since these things inevitably trace back to the queen, make a point of improving the strain by purchasing high-class queens at the time of increase, for it will be money well spent.

So then, when you have placed the new hive in its permanent position, send away for a laying queen of whatever strain you fancy, and, if she is a good one, by the time of winter you will have a fine stock, and you will not have robbed any hive of honey-gatherers. All field bees will have returned to the parent stock the day you made the nucleus. The young queen you have bought will build those five frames up to ten frames during the autumn, and go into winter quarters fit and eager for the next season's work; in this way the apiary may be strengthened.

Just a word about supering. Early in the honey flow always put your new super under the old, nearly-filled one, but later in the season, and towards the end of the flow, it is better to place a new super on the top of the old. Immediately the honey flow shows signs of ceasing the bees begin to collect the honey just above their heads, and a rack of empty sections right on top of the brood frames makes them begin to bring down from the top crate. It is entirely different earlier in the season, for, optimists as the bees are, they do not mind empty sections above the brood nest then. I suppose they argue, "It is all right, we will get that lot filled easily enough before this job is through." But whilst in June an empty rack overhead is an inducement, in July it is a deterrent. Watch, therefore, the flowers, and act accordingly.

Another advantage of putting new supers under the old ones in the early part of the season, is that you save travel-staining the sections. When the bees have to pass and repass over sections already capped they inevitably soil those over which they pass. Clean, snow-white cappings are more appetising, and more saleable, than stained ones.

Watch the development of flowers carefully and do not give too many crates; it means a lot of half-filled sections, which are annoying and wasteful. Two crates well-filled are better than three half empty. *J. Mavie.*

FRUIT GARDEN.

FRUIT PROSPECTS.

The Apple crop here appears to be quite up to the average of late years; standard trees especially are carrying heavy crops.

The following varieties will require thinning. Bramley's Seedling, Mère-de-Ménage, Lane's Prince Albert, Lord Derby, Worcester Pearmain, and Cornish Gillyflower. The crops on other standards that gave heavy yields last year are much thinner, such as Nancy Jackson, Newton Wonder, Hereford Beefing, Hollandbury and Annie Elizabeth. Bush and trained trees of the following varieties are cropping freely: Bismarck, The Queen, Royal Jubilee, Lane's Prince Albert, Edward VII, Arthur Turner, Stirling Castle, Rival, St. Edmund's Russet, King of the Pippins, Barnack Beauty, Charles Ross, Cox's Orange Pippin, St. Everard and Benoni. The fruits of all these sorts will need thinning. The remainder, which have an average crop, include Early Victoria, Warner's King, Mrs. S. T. Wright, Lord Grosvenor, Lord Derby, Crawley Beauty, Loddington, Hormead Pearmain, Gascoyne's Scarlet, Upton Pyne, Egremont Russet, Beaumann's Red Reinette, and James Grieve. There are good crops on cordon trees of Stirling Castle, Potts's Seedling, Loddington, Jubilee, Lord Derby, Edward VII, Egremont Russet, Braddick's Nonpareil, Christmas Pearmain, Sandringham, Crawley Beauty and Cox's Orange Pippin.

Pears are all grown on walls here. Beurré Diel, Doyenné du Comice, Josephine de Malines, Beurré Hardy, Winter Nelis, Catillac, Blicking, Marie Benoist, Durondeau, Beurré Bosc, Beurré Clairgeau, Glou Morceau and Duchesse d'Angoulême have heavy crops. Conference, Glastonbury, Verulam, Marie Louise, Pitmaston Duchess, Princess, and many others have a sprinkling of fruits.

Plum trees trained on west and north walls are carrying much heavier crops than those on south walls. The fruits on Reine Claude de Bavay, Coe's Golden Drop, Coe's Violet, Denniston's Superb and Blue Rock, have set very thickly. Standard trees of the following sorts have an abundance of fruits, Prince Engelbert, Victoria, Cooper's Black, Orleans, Belgian Purple, Monarch, Early Rivers, Damson, Langley Bullace.

Sweet Cherries are an average crop and Morello Cherries a very thin one. Figs are very promising and some fine fruits should develop with warmer weather. Peaches have not set well.

Of small fruits we have Gooseberries, Red Currants and Raspberries in abundance, but Black Currants are only an average crop. Royal Sovereign is the outstanding variety of Strawberry; the foliage is rather short in the stem and the stalks of the flower trusses are short this year owing to lack of warm weather.

Our Apple trees are much freer of caterpillars and the leaf-sucking aphis than was to be expected, as the trees were not sprayed a second time, owing to the weather being so unfavourable for the operation, and the advanced stage of growth.

Brown rot is developing rapidly in the following varieties: Peasgood's Nonesuch, Worcester Pearmain, Golden Noble, Tower of Glammis, and Cox's Orange Pippin. I consider that the wet seasons of the past four years have favoured the spread of brown rot, especially on our heavy clay soil. *E. Neal, Tilgate Gardens, Crawley, Sussex.*

VEGETABLE GARDEN.

LEEKS.

Leeks required for exhibiting in early autumn should be watered and fed regularly to encourage them to grow. Keep the plants erect in their initial stages by staking or other means, and place paper tubes over them early to obtain a sufficient length of stem before blanching begins. This operation should be performed carefully at least six weeks before the date on which they are to be exhibited, so that the stems may assume that milky whiteness, which is a valuable asset in exhibition Leeks.

The maincrop Leeks intended for winter supplies should now be ready for planting direct from the seed-bed that was sown in March, and the ground which they are to occupy cannot be made too fertile; if the land received a heavy dressing of farmyard manure during the winter and an application of superphosphate given when preparing the ground for planting, the resultant crop should be good.

The drills should be fairly deep and about fifteen inches apart. Make the holes for the plants with a dibber, six inches to eight inches deep and about the same distance apart. The seedling Leeks, after being sorted and trimmed, both at the roots and foliage, should be dropped into the prepared holes, taking care to see that they rest on the bottom. It is not necessary to fill the holes with soil, but if the weather is dry, water should be poured into them, which, in settling down, will carry sufficient fine soil with it to cover the roots. *A. T. H.*

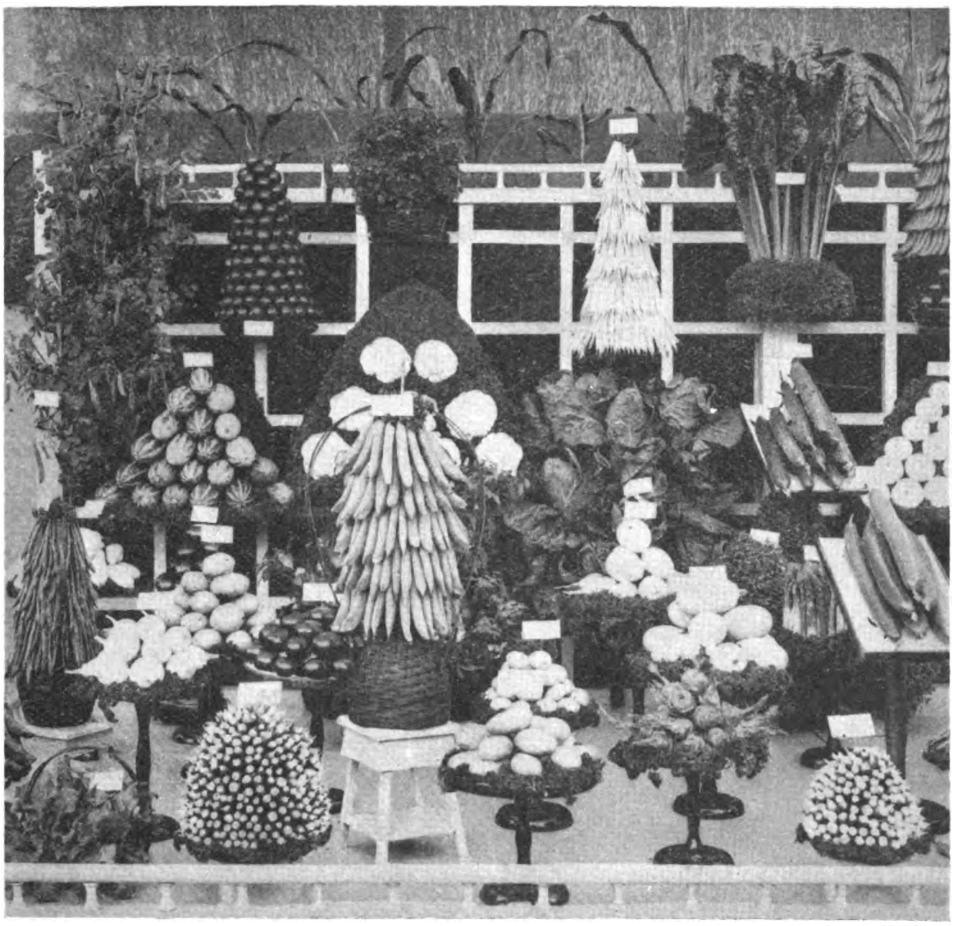

FIG. 234.—PORTION OF THE GOLD MEDAL EXHIBIT OF VEGETABLES SHOWN BY THE HON. VICARY GIBBS (GR. MR. E. BECKETT) AT THE CHELSEA SHOW.

(see p. 393).

ENDIVE.

THIS salad vegetable is often wanted before the Lettuce season is over, and when well-grown and properly blanched it adds both to the appearance and quality of an autumn salad.

The Moss-curled variety is usually the first fit for use, then comes the Green-curled which is superior in point of quality, and this again is surpassed by the later, Broad-leaved Batavian.

At this time of year Endive seeds should be sown in soil that has been newly turned over, that is, if the soil is of a light nature. If it is not, but one that is likely to go steely when freshly-dug, then it is advisable to turn over the ground some little time before-hand, and bring the surface into a fine tilth before sowing.

The seeds should be sown thinly and evenly, and if the soil is light and freshly-dug, tread the seeds in before raking the beds evenly.

If, however, the soil is not freshly dug but has a fine tilth, then no treading is necessary. When the plants are large enough to handle, transplant them in rows about nine inches apart in rich ground that has had a liberal amount of decayed manure worked into it. Thin the plants in the seed bed to about six inches apart. These will continue to grow sturdily, and, pressing against each other, will gradually close up their blanching being effected without any further trouble.

Endive may be sown right up to the first week in August, but where it is required for winter supplies, July 20 is quite late enough. The Green-curled is the best type for late sowing. *G. Barton.*

HOME CORRESPONDENCE.

Judging at Chelsea Show.—Many professional gardeners were probably interested in the comments made by Mr. Clarence Elliott on on the judging of rock gardens. These comments are something on the lines of the criticism of similar exhibits three years ago by the late Mr. W. Watson and others, centring, I believe, around the award of the *Daily Graphic* Cup to Captain Symons-Jeune. When reviewing the rock gardens this year, I remarked to Mr. Elliott that there appeared to be a great disparity in size and other points which would make it difficult to judge the exhibits. Generally speaking, the planting was more true to nature and the stone more suitably placed in all exhibits than usual. An exhibit or a garden which causes a garden enthusiast to linger over it may be considered something near perfection. There must be many who felt inspired in this way when they saw the rock garden put up by Capt. Symonds-Jeune; possibly it may be thought the stone was too much in the foreground. I cannot agree with Mr. Elliott that there cannot be a best rock garden, but I do think it was difficult to select the premier one at Chelsea this year. I certainly think exhibitors and members who regularly visit the R.H.S. exhibitions should know the broad lines on which such difficult exhibits are likely to be judged. Large areas have an advantage of covering faults which would be obvious in a small exhibit, particularly in the use of, say, Cheddar stone, where natural stratification must be looked for. Planting in masses must here again be taken into account. The multiplication of watercourses, judiciously set out, must be to the advantage of the exhibitor with the larger space at command. *A. J. Hartless.*

Fruit-drop and the Lime-sulphur Wash.—In your issue of June 5, Messrs. Goodwin, Salmon and Ware refer to our article in *The Gardeners' Chronicle* of April 24, in which we questioned certain deductions from their experiments (conducted jointly with Mr. Bagenal) in the use of fungicides for the control of Apple scab (*Journ. of Min. of Agric.*, April, 1926). We feel that there is no need for us to write further, since the writers ignore our chief point, viz., that the existence of a drop of Apples following the post-blossom application of lime-sulphur can be observed not only by counting the dropped Apples in the summer, but also by the number of matured fruits picked from the trees in the autumn. Whilst they assert again "that no appreciable drop took place as the result of the use of any of the sprays," we point out that their own figures, showing the number of mature fruits picked from the trees (if we may assume that large enough units of trees were used to make them reliable), prove that such a drop did take place. No one would dispute the writers' statement that seasonal differences often affect the results of experiments with fruits, as with other plants. But, if the only legitimately comparable treatments are compared, the writers' own figures show clearly that the season of 1925 did not give, in this particular instance, a result contrary to those obtained in the seasons 1919 to 1924. *Norman H. Grubb, Ronald G. Hatton, East Malling Research Station, Kent.*

Apple Dr. Harvey or Waltham Abbey?—Your correspondent raises the query (p. 443), as to whether Dr. Harvey and Waltham Abbey Seedling Apples are synonymous. The late Mr. William Allen, who was gardener at Gunton Park for fifty years, had an exceptional knowledge of hardy fruits. On several occasions he informed me that he sent scions of Dr. Harvey to the gentleman who eventually sent the variety out as Waltham Abbey Seedling Apple. Dr. Harvey is generally grown in Norfolk, and is a great local favourite, as the trees crop well when matured on our thin, chalky soils. Few farm orchards are without a few trees of this variety, and I regard it as a Norfolk Apple. It sells well in the local markets, but it is not a satisfactory sort to send away owing to its light weight, and season. Owing to its peculiar habit of growth, the variety is easily recognised in winter by its large size and twiggy development of shoots. Norfolk Beauty is a similar Apple, with identical habit of growth. This variety is a chance seedling that grew in a hedge in a cottage garden near Aylsham. Mr. Allen found it through judging at the Aylsham show, and worked up a stock. Its season is later than that of Dr. Harvey. I have seen the parentage of Norfolk Beauty given as Dr. Harvey × Warner's King. This may be a good guess, but that is all it can be. I once sent a dish of Dr. Harvey for the entertainment of a Cabinet Minister (Mr. John Burns) who was staying in Norwich. He pronounced the Apples to be the finest he had ever eaten. *H. Goude, County Horticultural Organiser Norfolk.*

SOCIETIES.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

Thursday, June 3.—*Committee present;* Mr. R. Ashworth (in the chair), Mr. C. Branch, Mr. A. Burns, Mr. A. Coningsby, Mr. D. A. Cowan, Mr. J. Cypher, Mr. A. G. Ellwood, Mr. J. Evans, Mr. A. Keeling, Mr. E. W. Thompson and Mr. H. Arthur (Secretary).

First-Class Certificates.

Odontonia Pittiae, Rosslyn variety (M. Bleuana × Odm. Harryanum).—An exceptionally large rosy purple flower; the sepals and petals are slightly spotted. *Miltonia Wm. Pitt var. Dusky Monarch.*—A variety with sepals and petals of velvety-crimson; the front lobe of the lip is deep claret, the centre of rose and white. *Laelio-Cattleya Hassallii alba, Cowan's variety.*—The finest form of this hybrid with pure white sepals and petals; the lip is purple with a yellow throat. From H. T. Pitt, Esq.

Sophro-Laelio-Cattleya Anzac var. Vesuvius.—A well-shaped flower of a shade of crimson-purple with a lip of deep velvety crimson. From Mrs. P. Smith.

Odontoglossum crispum var. Lady Margaret.—A fine form of the Doin section with a large, round flower; the petals are white and the sepals slightly flushed, while the white lip has a yellow crest. From S. Gratrix, Esq.

Awards of Merit,

Brasso-Cattleya Boadicea var. Verulam; Cymbidium Garnet var. splendens; Odontioda Majestic (Oda. Coronation × Odm. Majesticum). From Messrs. Sanders.

Odontoglossum crispum Iron Duke. From Mrs. S. Gratrix.

Odontoglossum Rosina, Vestey's variety. From the Hon. G. E. Vestey.

Groups.

S. Gratrix, Esq., West Point (gr. Mr. C. Branch) staged a group to which a Gold Medal was awarded.

A Gold Medal was also awarded to H. T. Pitt, Esq., London (gr. Mr. W. Thurgood), for a group of Orchids.

A group composed principally of Miltonias of the vexillaria and Bleuana types, was staged by Mrs. Bruce and Miss Wrigley, Bury (gr. Mr. A. Burns), and awarded a Silver-gilt Medal.

The Hon. G. E. Vestey, Southport (gr. Mr. B. Collins), was also awarded a Silver-gilt Medal for an exhibit.

Silver Medals were awarded for groups staged by J. B. Adamson, Esq., Blackpool (gr. Mr. R. Taylor); Messrs. J. Cypher and Sons, Cheltenham; Messrs. J. and A. McBean, Cooksbridge; and Messrs. Sanders, St. Albans, respectively.

Annual Meeting.

The report and statement of accounts as submitted were adopted and the executive committee re-appointed with the exception of the Rev. J. Crombleholme, who had resigned; Mr. J. B. Adamson was elected to fill the vacancy arising. The awards committee was re-elected, Mr. D. McLeod filling the place of Mr. A. G. Elwood in the nurserymen's section, and Mr. B. Collins the place of Mr. G. Giles in the gardeners' section.

The prizes were presented to the successful exhibitors as follow:—

Mr. J. J. Bolton's prize to S. Gratrix, Esq. (gardener's prize to Mr. C. Branch); Messrs. Sander's prize to A. Hanmer, Esq. (gardener's prize to Mr. G. Giles); Botanic Society of Manchester's Silver-gilt Medal to Mr. A. Burns, and the Society's Silver Medal to Mr. G. Giles; Messrs. Charlesworth's and Co.'s prize to S. Gratrix, Esq. (gardener's prize to Mr. C. Branch); Messrs. J. Cypher and Co.'s prize to S. Gratrix, Esq. (gardener's prize to Mr. C. Branch); Mr. J. Evans's prize to S. Gratrix, Esq. (gardener's prize to Mr. C. Branch); Mr. S. Gratrix's prize to J. B. Adamson, Esq. (gardener's prize to Mr. R. Taylor); Mr. J. Evans's prize to A. Hanmer, Esq. (gardener's prize to Mr. G. Giles); Mr. Hanmer's prize to S. Gratrix, Esq. (gardener's prize to Mr. C. Branch); Mr. D. Losh Thorp's prize to J. B. Adamson, Esq. (gardener's prize to Mr. R. Taylor); Mrs. Smith's first prize to Mr. C. Branch; second prize to Mr. R. Taylor; and third prize to Mr. A. Burns. The Society's Gold Medals were awarded to H. T. Pitt, Esq., and the Hon. G. E. Vestey.

ROYAL HORTICULTURAL SOCIETY.

Amateur Show.

A year ago the Royal Horticultural Society held its first Amateur Show at Vincent Square and the result was disappointing to those who, like ourselves, believed that such an exhibition, where amateurs could compete with each other could be made a great annual feature. We believe there was some doubt as to whether the Council would continue the experiment, but Mr. H. B. May, who conceived the idea, urged its continuance, with an enlarged and more broadly planned schedule. Sir Wm. Lawrence supported Mr. H. B. May, and a second show was arranged and wider publicity given to it. The result, as seen on Tuesday, June 22, thoroughly justified the faith of the promoters, and we believe that in the years to come this annual function will become increasingly interesting and amateurs will be encouraged to bring up the best they can produce and also show such new and rare plants, in season, as they may possess. We would add, further, that in our opinion this exhibition should 'receive the support of the trade, because if the interest of amateurs can be excited and maintained it is certain they will purchase the best varieties of the kind of plants and flowers required, so that they may compete the more successfully.

The *Daily Telegraph* Cup offered to the most successful exhibitor in section B (amateurs whose garden wage-bill does not exceed £4 per week), was won by Mr. G. H. Fisher, Purley, who was only one point better than Mr. Cashnella. The *Amateur Gardening* Cup offered to the most successful exhibitor in section C (amateurs who employ no gardener), was won by Mr. F. Vokes of Southampton. ***The Gardeners' Chronicle*** Medal offered to the exhibitor of the best dozen vases of cut shrubs in section A (open to all amateurs), was won by Col. R. Stephenson Clark, Borde Hill, Cuckfield.

Non-Competitive.

A few amateurs contributed attractive and interesting exhibits not for competition, and the largest was the one from Sir Jeremiah Colman, Bt. (gr. Mr. J. Collier), Gatton Park, Reigate. This occupied the position usually given over to the new plants and it was gay with Anthuriums and Orchids, and had large trays of the lovely blue Saintpaulia ionantha, the whole associated with Ferns, Nepenthes, Codiaeums and Rex Begonias; Crossandra undulaefolia was conspicuously good. Among the Orchids the leading subjects were Thunia Marshalliana, Odontoglossum Gatton Princess, Sobralia xantholeuca, Cypripedium Curtisii var. Sanderae and such quaint little species as Promenaea Crawshayana and Sarcochilus Ceciliae.

H. J. Pitt, Esq. (gr. Mr. Thurgood) exhibited a bright collection of Orchids wherein Miltonias where the principal feature. These included M. Hyeana, M. vexillaria Memoria G. D. Owen, M. Beau Brummel, M. Wm. Pitt, M. St. André, and M. Charlesworthii. Excellent Odontoglossums were O. Redskin, O. amabile, O. Purple Queen, and O. agapetum. Other notable plants were Chondrorhyncha Chestertonii, Masdevallia Doris, M. Shuttleworthii, Maxillaria tenuifolia, and Cypripedium St. Alban of very dark colouring.

Reginald Cory, Esq. (gr. Mr. J. T. Smith), Duffryn, Cardiff, showed a fine collection of cut sprays of flowering trees and shrubs wherein we noticed Actinidia chinensis, Syringa japonica, Escallonia edinensis, Philadelphus Mont Blanc, Clianthus puniceus, Solanum crispum, Cornus Kousa, Olearia macrodonta, Convolvulus Cneorum, Rhododendron fragrans and Crinodendron Hookeri, while over all arose great sprays of flowers of Cordyline australis. It was unfortunate that Mr. Cory had insufficent space in which to exhibit his collection to the best advantage.

In a corner of the hall near the tea annexe —which, by the way, was filled with exhibits— Lt.-Col. L. C. R. Messel (gr. Mr. Comber), Nymans, Staplefield, Sussex, displayed an extremely interesting collection of hardy plants. There were fine sheaves of Drimys Winteri, Magnolia Watsonii, M. parviflora, M. hypoleuca, Escallonia langleyensis, E. exoniensis, the graceful Pterostyrax corymbosum, Tricuspidaria lanceolata—ablaze with its pendant red lanterns; Leptospermum Chapmanii, Cornus Kousa, Leptospermum lanigerum, Rhododendron Keysii and Grivellea sulphurea, while on one side were groups of Primula Beesiana, P. Waltonii, P. macrodonta, P. Florindae (very fine), and hardy Calceolarias, with a draping of Mutisia Clematis behind. Several new Primulas and Calceolarias were shown under numbers. The Nymans gardens are famous for their collection of trees and shrubs and the exhibit was a fine demonstration of the foundation of that fame.

Division A.

This premier division was open to all amateurs. Money prizes, in varying amounts, were offered and, in addition, the Council offered medals for especially meritorious exhibits.

There were three groups of miscellaneous plants and the first prize was won by A. P. Brandt, Esq. (gr. Mr. J. W. Barks) Bletchingley Castle, Bletchingley, with an imposing display principally of Codiaeums, Liliums and Hydrangeas, lightened with Palms and bordered with Ferns. The arrangement was good and the plants were all of superb quality. Each of the many Codiaeums was a model of cultural skill and included such varieties as Resplendent, Reidi, Mars and Pucciniana. The principal Liliums were L. longiflorum and L. tigrinum. The second prize was won by Sir William Lawrence, Bt. (gr. Mr. Everatt), Burford, Dorking, with a very graceful group of Carnations, Hydrangeas, Haemanthus and Anthuriums, with many excellent plants of Gloriosa Rothschildiana in the background. The third prize group exhibited by Lady Crosfield, Parkfield, Highgate, contained many well-grown Caladiums.

The best exhibit of twelve flowering plants was shown by Sir William Lawrence, Bt., who included specimens of Ataccia cristata, Haemanthus Katherinae and a pan of four plants of Gilia californica. C. H. W. Mander, Esq. (gr. Mr. L. Brown), Blacketts, Chorley Wood, was awarded the second prize. In the class for six foliage plants A. P. Brandt, Esq., was decidedly first, and he included well-grown plants of Dracaena Monouk Bey, Croton Mortefontiensis and a good Caladium. Lady Crosfield was second.

W. B. Cranfield, Esq., East Lodge, Enfield Chase, was awarded the first prize for twelve splendid examples of British Ferns. He included Athyrium plumosum superbum, Polystichum angulare divisilobum stipulata and P. aculeatum gracillimum.

The two collections of Succulents were very interesting, and Reginald Cory, Esq., Duffryn, Cardiff, was awarded the first prize for an admirably arranged group of well-grown plants which included Aloe Lynchii, Echinocactus Grusonii, Cereus senilis, and Cotyledon gibbiflora monstrosa.

The four exhibits of twelve vases of cut sprays ofshrubs were an important feature of the show and they filled a considerable space. The first prize included ***The Gardeners' Chronicle*** Medal and it was interesting to note that the exhibit included a splendid vase of Leptospermum Nichollii, the beautiful shrub which won the cup offered by ***The Gardeners' Chronicle*** for the best new plant at the International Horticultural Exhibition at Chelsea in 1912. Col. R. Stephenson Clarke, C.B., Borde Hill, Cuckfield, who won first prize, also showed splendid vases of the brilliant Rhododendron Griersonianum, Raphiolepis japonica, Magnolia parviflora, Stuartia (Stewartia) and Abutilon vitifolium. Lionel de Rothschild, Esq. (gr. Mr. A. Bedford) Exbury, Hants, was a close second in this excellent class and he included beautiful vases of Rhododendrondiscolor, Kalmia latifolia, of uncommonly bright colouring, Escallonia

Donard Seedling, Cornus Kousa and Buddleia alternifolia. Sir **William Lawrence**, Bart., who was third, had a magnificient flower of Magnolia macrophylla and a good vase of Abelia floribunda.

Amongst the cut flowers in Section A, Sweet Peas were the outstanding feature and these were shown in great excellence. The best twelve vases were staged by General R. L. **Multens**, C.B. (gr. Mr. T. Baines), Langham Oaks, Colchester. In this excellent exhibit, there were vases of Charming, deep rose; Leslie Rundle, cream; Powerscourt, lavender; Constance Hinton, white, and Ruby. W. F. **Franks**, Esq. (gr. Mr. W. Humphrey), Loampits, Tonbridge, was a close second and his exhibit was noteworthy for the intense colours of Centaur, 2 L.O., Grenadier and Mammoth. Lt.-Col. Sir **Randolph Baker**, Bart. (gr. Mr. A. E. Usher), Ranston, Blandford, was third in this strong class.

Roses were only of moderate quality. H. L. **Wettern**, Esq., Oxted Place, Oxted, won first prizes for H.T. or T. varieties and for Rambler Roses. There was no exhibit of Polyantha Roses. Mr. **Wettern**'s six vases of H.T. varieties included the Queen Alexandra Rose Mrs. H. Stevens, Mrs. Foley Hobbs and Lemon Piller. Of his Ramblers the best were Paul's Scarlet Climber, Dr. Van Fleet, Diabolo and Coralie.

Delphiniums were very good indeed, though there were only two exhibitors. Mrs. **Hamilton** (gr. Mr. G. Smith), Kingsmead, Claygate, won the first prize with twelve vases of magnificent spikes and A. K. **Farrell**, Esq. (gr. Mr. E. Palmer), Acton Hill, was second.

Competition was keen in the class for twelve vases of hardy flowers where Sir **William Lawrence**, Bt., was first; R. H. **Whitelaw**, Esq., was second, and **Lionel de Rothschild**, Esq., third. In the first prize exhibit there were Calochortus El Dorado, Delphinium F. F. Fox and Phlox Arendsii. Mr. L. **de Rothschild** included Libertia formosa, Rhazya orientalis and Iris Kaempferi Morning Mists.

There were several excellent exhibits of perpetual-flowering Carnations and here the first prize was won by Sir **Randolf Baker**, Bt., with splendid vases of Maine Sunshine, Laddie and Topsy. S. J. **Hose**, Esq. (gr. Mr. J. Humphrey), who was second, included very fine vases of Topsy, White Pearl and Laddie.

There was only one exhibit of six vases of border Carnations; it was shown by J. **Fairlie**, Esq., Acton, and worthy of the first prize, which was awarded. His best varieties were Linkman, Pasquin and Border Yellow. Garden Pinks made an interesting and effective display, and the two exhibits were quite distinct in character. R. **Morton**, Esq., Woodside Park, was awarded the first prize for a collection which included vases of Model, Mrs. G. W. Walker and The Imp: while W. B. **Cranfield**, Esq., was second with six vases of the pretty little fringed varieties.

The class for six vases of Paeonies, three blooms in each, was of international character, and the majority of the exhibits were sent from New Jersey, U.S.A. The transatlantic exhibitors were Mrs. **Elliott Averett**, Dixiedale Farm; Mrs. E. F. **Burrows**, Plainfield; Mrs. G. P. **Mellick**, Giggleside, Plainfield; and Mrs. **Edward Harding**, all of New Jersey. There were only two English exhibits, though spaces had been arranged for more. The American Paeonies reached Southampton on the Friday previous to the show, and were still in the tight bud state; in fact, Mrs. **Harding**'s varieties were still in that condition at noon on the day of the show, but the other exhibits had opened properly, and Mrs. **Averett**'s flowers, which had received the second prize, were then decidedly of the freshest appearance of any in the class; all the others had flagged more or less badly. Mrs. **Averett**'s varieties included lovely examples of Stephanie, blush; Adolph Rousseau, deep ruby; Mons. Jules Elie, pink, and La Cygne, white. The first prize was awarded to Mr. C. W. H. **Mander**, Chorley Wood, for an unnamed exhibit.

The classes for Antirrhinums, Annuals, Bearded Irises, and Gladioli were unrepresented. Violas were of quite good quality, and while the show method of placing the flowers in long narrow tubes does not lend itself to effect, it displays the points of the blooms admirably. Mr. J. **Wood**, Guiseley, Leeds, was first, and Mr. A. D. **Bates**, Stony Stratford, was second.

Orchids in pots were of great merit and the exhibitors made very attractive displays with the twelve plants the class required. The first prize was won by J. J. **Bolton**, Esq. (gr. Mr. S. Lyne), Claygate Lodge, Claygate, who showed excellent plants of Cattleya gigas var. Majestica, and several especially good varieties of Odontoglossum crispum, of which O. c. Premier Asquith a compact spike of large, rounded, white flowers, with a light purple band along the upper segment, and a gold crest, was the best, though O. c. Virginia and O. c. The Chairman were also very attractive. In the second prize exhibit of H. T. **Pitt**, Esq. (gr. Mr. F. W. Thurgood), Rosslyn, Stamford Hill, London, there were handsome plants of Cattleya Bronacha alba, Miltonia Nubia, Odontioda. Brewii and Laelio-Cattleya Aphrodite.

Division B.

This section comprised twenty-five classes open only to those whose garden wage bill does not exceed £4 weekly. In most of the classes the first prize was the sum of £3 with a second prize of £2 and a third prize of £1. Much the strongest features of these classes were Sweet Peas and Delphiniums.

There were three classes for Roses shown in vases. The first was for six vases of Tea and for Hybrid Tea varieties, three blooms in each vase. Ten exhibits were forthcoming and the quality varied from very good to very poor. The largest blooms were shown by Rev. T. R. **Burnside**, Great Stambridge Rectory, Essex, and they were worthily awarded the first prize. The varieties were Caroline Testout, J. B. Clark, Mrs. Henry Morse, Medea, C. E. Shea and Christie Martel. Second, R. **Abel Smith**, Esq., Broad Oak End, Hertford (gr. Mr. C. Wren), whose best blooms were Mme. Hoste, Florence Forrester, and Mme. Leon Pain. Third, Mrs. **Anley**, Wych Hall Lane, Woking (gr. Mr. P. Collyer).

The next class was for three vases of Rambler Roses, a simple contest in which twelve competed and the majority will doubtless profit by their experience in learning how an exhibit of this kind should be displayed, for the first prize collection shown by Mrs. A. F. **Barton**, York House, Chappel, Essex, was splendid. It comprised big posies of Emily Gray, Paul's Scarlet Climber and Cupid; the second prize was awarded to J. A. **George**, Esq., Red Hill, Worcester, for Silver Moon, Paul's Scarlet Climber and Albéric Barbier; third, W. J. **Wright**, Esq., Reading. The remaining Rose class was for six vases of Roses other than those in the two previous classes and here the first prize was awarded to Mrs. **Wightman**, Bengeo, Hertford, for Vanity, Isobel, Pax, Kirston Poulsen and two unnamed varieties; second, Mrs. A. F. **Barton**; third, F. A. **George**, Esq.

The class for six vases of Delphiniums made a big display of blue, and the spikes generally were excellent. The first prize was awarded to **Watkin Samuel**, Esq., Wrexham, for immense spikes of Jenny Jones, Day Dreams, Rose Marie, Elegance, Fearless and Welsh Lassie; second, E. H. **Blakesley**, Esq., Fairlawn, Redhill Common, whose spikes of Joan Carter, Norah Ferqueson and King of Delphiniums were splendid; third, P. **Thrale**, Esq., Coombe Lane, Croydon.

Sweet Peas were a very strong class and here Dr. G. S. **Leggatt**, Harpenden (gr. Mr. E. J. Pratt), excelled with perfect spikes of such sorts as Charming, Constance Hinton, Grenadier and Powerscourt; second, J. **Randall**, Esq., Leamington, also with an exhibit of high merit; third, W. **Huffey**, Esq., Tonbridge, Kent.

The best six vases of hardy flowers were displayed by Mrs. **Wightman**, Bengeo, Hertford, who showed Spanish Irises, Campanula persicifolia, Lilium umbellatum, Oriental Poppies, Dictamnus albus and Delphiniums; the second prize exhibit by R. A. **Smith**, Esq., Hertford (gr. Mr. C. Wren), included a magnificent vase of Centaurea macrocephala and fine white and blue Campanula persicifolia; third, Mrs. A. F. **Barton**.

Some excellent Carnations of the Perpetual-flowering type were shown by Mr. W. E. **Tucker**, Freshwater, Isle of Wight, in a class for three vases of these flowers. His varieties were Greenfield, Baroness de Brienin and Nigger. Three others competed and the second best flowers were shown by Mr. G. H. **Fisher**, Purley.

Six competed in the class for three vases of hardy Pinks in which Mr. R. **Morton** excelled with the varieties Mrs. Pryor, The Imp, and Victory: Second Commander Garnier, Sittingbourne,

Mr. J. **Wood**, Guiseley, near Leeds, had an easy win in the class for six vases or sprays of Violas, beating eight other competitors. His flowers were of large size and the stalks were arranged in glass tubes filled with water, consequently the blooms remained fresh, when the majority of the others had faded; second Mr. A. **German**, Hornchurch, Essex.

The Antirrhinum Classes were disappointing and we were surprised at the mediocrity of the spikes considering how extensively these flowers are grown now-a-days. The premier award was made in favour of Mr. H. **Farnell**, Acton Hill, W.

No exhibit was forthcoming in the class for bearded Irises, but Mr. G. **Yeld** had a very striking collection in the class for six vases of Beardless Irises. He was awarded the first prize for splendid spikes of I. Francis, I. Wilsonii, I. Delavayi, I. Snow Queen and I. Monspur.

Mr. G. H. **Fisher** was the only exhibitor in a class for six vases of Paeonies and his exhibit was awarded the first prize.

A very interesting class, in which four competed, was the one for six flowering shrubs. Mrs. **Desborough**, Broadstone, Dorsetshire, won easily with Leptospermum Nichollii, Styrax japonica, Fremontia californica, Embothrium coccineum, Helichrysum rosmarinifolium and Escallonia langleyensis. The class for six flowering plants, grown under glass, was very disappointing and the first prize exhibit shown by Mr G. H. **Fisher** included four specimens of Calceolaria.

A poor exhibit of Ficus variegatus, a Caladium and Draceana Sanderiana was adjudged the best exhibits of three foliage plants grown under glass. Mr. G. H. **Fisher** was placed first for six tuberous-rooted Begonias and three Fuchsias respectively.

Division C.

This section was open only to amateurs who do not employ any gardener, but were permitted to engage assistance for such heavy work as digging and trenching. The classes numbered twenty-eight and we must confess that we were disappointed with the standard generally, indeed, it was surprising that so few exhibits of merit were forthcoming from those whom it might be expected would include keen and successful gardeners.

Apparently no prize was awarded in the class for three vases of Roses other than Ramblers, but in that for one vase of a Rambler Rose a very nice exhibit of Goldfinch was shown by Mr. A. H. **Pullin**, Wallington. Only the second prize was awarded in the class for three vases of Delphiniums, but better competition was seen in the class for three vases of hardy flowers in which Mr. C. **Luckin**, East Grinstead excelled with Gladiolus The Bride, Spanish Irises and Campanulas.

The best annuals were adjudged to be those shown by Mr. F. J. **Cashnella**, Bath, who had Nigella, Sweet Peas and Gypsophila. Although only three exhibited in the class for perpetual-flowering Carnations, two of the collections were exceptionally fine, these being shown by Mr. F. J. **Cashnella** and Mr. W. E. **Tucker**, respectively.

A large number of competitors entered in the classes for Violas. In the largest class for three vases or sprays of Violas, Mr. J. **Wood** was placed first and in that for three pans of cut blooms of Violas, Mr. A. D. **Bates**, Stony Stratford, was the winning competitor. There were numerous other classes in this section, but there was nothing that calls for special comment.

Obituary.

Arthur Bennett.—It is with much regret we announce the death, on June 2, of Mr. Arthur Bennett, for eighteen years gardener at Snelston Hall, Ashbourne, Derbyshire, to the late H. Stanton, Esq., and to Mrs. Stanton. Mr. Bennett was a very capable gardener and while under his care the gardens at Snelston were extended and very much improved. Roses are a special feature at Snelston, about 2,500 being planted on one of the terraces which was added under his supervision, and provide a charming picture when in bloom. Mr. Bennett was a very successful plant grower, especially with Begonia Gloire de Lorraine, Cyclamen and Carnations. He possessed a pleasant disposition, and was very highly respected by all who knew him. During his earlier years, Mr. Bennett served in good gardens being for a time journeyman under Mr. Ingram, at Belvoir Castle, leaving there to go as foreman (inside) at Harewood House, under the late Mr. Jeffries, where he was for nearly four years before taking his first charge as gardener to H. Stanton, Esq., at Tyberton Court, Hereford, where he remained seven-and-a-half years. His next appointment was with Miss Bethel at Newton Kyme Hall, Tadcaster, Yorks, an appointment he held for five years, then returning to Mr. Stanton at Snelston. Mr. Bennett leaves a widow and two daughters to mourn his loss.

TRADE NOTE.

The very handsome catalogue issued by Messrs. Messenger and Co. contains so many charming views of conservatories and conservatory-varandahs erected by them in various parts of the country that it is difficult to put the catalogue on one side without sending the firm an order. Equally attractive are the designs for winter gardens, but such erections, although they excite admiration, are for the comparatively few. The garden porches illustrated and the garden shelters and the summer-houses come within the purview of many, while the practical gardener will find abundant interest in the numerous designs for vineries, plant houses, pits and frames, which occupy many pages. The Loughborough firm is ready to undertake the erection of large and ornate glasshouses, but it does not despise the demands of modest amateur gardeners.

ANSWERS TO CORRESPONDENTS.

Names of Plants.—*A. E. M.* We do not undertake to name florists' flowers. *W. F. H.* 1, Prunus Padus; 2, Asphodelus luteus. *E. A. H. and J. D. L.* Bilbergia nutans. *F. E.* Mahonia (Berberis) japonica. *J. F. S.* 1, Rhododendron Lord Palmerston; 2, *R.* Sir Joseph; 3, R. Cunningham's White; 4, R. Victoria; 5, distinct seedling of R. ponticum. *Ride.* Bryophyllum calycinum. *A. J. C.* Prunus Padus, the bird Cherry. *C. C. M.* Primula denticulata. *W. S. W.* Edwardsia microphylla.

Raspberry Canes Dying. *W. C. M.* No fungus could be found in the parts of the canes sent. It is probable that the cause of the trouble exists in the canes lower down.

Weeds in a Lawn.—*R. B.* The weed infesting your lawn is Trifolium minus. The best plan to suppress the growth of this Clover is to stimulate the growth of the Grasses by the application of a rich top-dressing containing nitrogenous fertilisers, as this would cause the grasses to grow so luxuriantly as to crowd out the weeds. The application of basic slag favours the growth of Clovers in lawns, and you would be advised not to use this fertiliser.

Communications Received.—Black Eagle.—W. E. F.—F. B.—J. G. S.—R. E.—R. L.—W. T. L.—A. M.—F. F.—W. E. B.—A. B.—W. A. B.

MARKETS.

COVENT GARDEN, Tuesday, June 22, 1926.

Cut Flowers, etc.: Average Wholesale Prices.

	s. d. s. d.
Adiantum decorum, doz. bun.	9 0-10 0
cuneatum, per doz. bun. ...	8 0-10 0
Arums (Richardias) per doz.	5 0—6 0
Asparagus plumosus, per bun., long trails, 6's	2 0—3 0
med. sprays	1 6—2 6
short	0 9—1 3
—Sprengeri, bun. long sprays...	1 6—2 0
med. „ ...	1 0—1 6
short „ ...	0 4—1 0
Carnations, per doz. blooms .	2 6—4 0
Coreopsis, per doz. bun.... ...	4 0—5 0
Cornflower, pink, per doz. bun:	3 0—4 0
—blue, per doz. bun.	1 6—2 6
Croton leaves per doz. ...	1 9—2 6
Daisy Giant White, per doz. bun....	3 0—4 0
Fern, French, per doz. bun.	10 0-12 0
Forget-me-not, per doz. bun.	6 0—8 0
Gaillardias, per doz. bun. ...	5 0—6 0
Gardenias, 12's, 18's, per box	5 0—6 0
Gladiolus, The Bride, per doz. bun.	12 0-18 0
—primulinus 6's, per doz. bun....	15 0-18 0
—Blushing Bride, per doz. bun...	9 0-15 0
—Peach Blossom, per doz. bun.	9 0-15 0
—various Giant varieties, per doz. spikes ...	4 0—6 0
Gypsophila ...	4 0—6 0
Heather, white, per doz. bun.	10 0-12 0
pink, per doz. bun.	9 0-12 0
Iceland Poppies, per doz. bun.	2 6—3 0
Iris, blue, per doz. bun. ...	12 0-21 0
—mauve, per doz. bun. ...	12 0-18 0
—white, per doz. bun.	12 0-18 0
—yellow	12 0-18 0

	s. d. s. d.
Lapageria, white, per doz. blooms	3 6—4 0
Lilium longiflorum long, per doz.	3 6—4 0
Lilium speciosum rubrum, long, per doz. blooms ...	3 6—4 0
—short doz. blooms ...	3 6—4 0
—lancifolium album, per doz. blooms ...	5 0—6 0
Lily-of-the-Valley, per doz. bun.	18 0-30 0
Nigella, blue, per doz. bun. ...	4 0—6 0
Orchids, per doz.	
—Cattleyas ...	30 0-36 0
Paeonies, white, per doz. bun. 6's...	10 0-15 0
—pink, per doz. bun. 6's	9 0-12 0
—red, per doz. bun. 6's	12 0-15 0
Pinks, white per doz. bun. ...	3 0—6 0
Roses, per doz. blooms—	
—Madame Abel Chatenay ...	2 0—2 6
—Molly Sharman Crawford	2 6—3 6
—Richmond ...	2 0—3 0
—Columbia ...	2 6—3 0
—Golden Ophelia	3 0—4 0
—Sunburst ...	2 0—3 6
—Mrs. Aaron Ward	2 0—2 6
—Madame Butterfly	2 0—3 0
Scabiosa caucasica, per doz. bun....	5 0—6 0
Smilax, per doz. trails	5 0—6 0
Statice sinuata per doz. bun.	3 0—4 0
—Suworowii ...	12 0—18 0
Stephanotis, per 72 pips... ...	3 0—3 6
Stock, double white, per doz. bun.	9 0-15 0
Sultan, white per doz. bun.	9 0-12 0
—yellow, per doz. bun...	— —
—mauve, per doz. bun.	10 0-12 0
Sweet Peas, per doz. bun. ...	6 0-18 0
Violas	1 0—1 6

Remarks.—The general demand for cut blooms continues to be fairly good for June. Supplies have increased during the past few days, especially of out-door blooms. A few white Asters have been on sale during the past week, also white and mauve Sweet Sultans. Blue Irises are getting over, but there is still a good supply of white and yellow varieties which are at the present time excellent in quality. The market is overdone with Delphiniums for which there is very little demand. Gladioli are much easier in price owing to the increased supplies from home-growers, and further supplies from Guernsey. Trade in other subjects is similar to that of last week, but prices generally are on the down grade, especially for outdoor flowers. French flowers are over for this season.

Vegetables: Average Wholesale Prices.

	s. d. s. d.
Beans—	
—Madeira, per basket ...	2 6—3 6
Box	3 0—3 6
—Guernsey and Worthing forced	1 6—1 9
Beets, per cwt.	7 6—9 0
Cabbage, per doz.	1 6—2 0
Carrots, new, per doz. bundles	4 0—8 0
Cauliflowers, per doz.	3 0—5 0
Cucumbers, per doz.	4 0—5 0
—Flats	10 0-15 0
Horseradish, per bundle ...	1 6—2 0
Lettuce, round, per doz. ...	1 0—2 0
Marrows, forced per doz. ...	9 0-15 0
Mint	1 6—2 0
Mushrooms,	
—cups ...	2 0—2 6
—Broilers ...	1 0—2 0
Onions—	
—Egyptian ...	— 12 0
Parsnips, per cwt.	5 0—6 0

	s. d. s. d.
Peas, English per bushel. ...	15 0-20 0
—French, per bag	3 0—5 0
Potatos—	
—King Edward per cwt. ...	6 0—7 0
—others	4 0—5 0
New Potatos—	
—St. Malo ...	7 0—8 0
—Azores, per case	5 0—8 0
—Guernsey, per cwt.	— 8 0
—Jersey, per cwt.	7 0—8 0
Rhubarb, Outdoor, per doz.	8 0—9 0
Spinach, per bushel	3 0—4 0
Spring Greens, per bag ...	2 0—3 0
Tomatos—	
—English, pink,	6 0—7 0
—pink and white	6 0—7 0
—blue	5 0—6 0
—white	5 0—6 0
—Guernsey ...	— 6 0
Turnips, per cwt.	5 0—7 0
—new, per doz. bunches ...	6 0-10 0
Turnip Tops, per bag ...	3 6—4 0

Remarks.—While some sections of the market report business as quiet, there is a very fair amount of trade. Strawberries are the important feature this week, and, as usual when they are in season their demand overshadows that for most other fruits. Grapes, Peaches Nectarines, Melons and Figs are in moderate demand, and supplies are not large. Australasian Apples are in heavy supply, and the trade is not brisk in this section, consequently the prices are low. The importation of Cherries from France having practically ceased, some excellent fruits are arriving from Italy. English Cherries are selling freely. Oranges are a slow trade even at low prices. Tomatos are ripening freely, and the warmer weather is favourable to a good demand. The value of Cucumbers is low and sales are negotiated with comparative difficulty. Asparagus is finished for the season; the quantities have been heavy throughout, but prices have been only moderate. Gooseberries have been a very bad trade, except at a low figure; at the time of writing the tendency is for better prices. Forced Beans continue to sell well, but Peas are an adverse factor in their sale the large quantities of Peas marketed daily meeting a good demand. Green vegetables are plentiful and cheap. The trade in new Potatos is poor particularly for Jersey produce. Potatos from St. Malo, which have been a good business, are now not quite so popular with the public.

GLASGOW.

Business in all sections of the market was very slow during the past week. Perhaps the most important movement was the sharp decline in the prices of Tomatos. First-grade Scotch Tomatos were offered so low as 8d. per lb. and the price fluctuated between that figure and 1/-. English Tomatos made 6d. to 7d.; Guernsey-grown, 5½d. to 8½d.; and Dutch-grown, 6d. Strawberries were also cheap, those from Cheddar being worth 9d. to 1/- per lb. and those from Southampton, 3/- to 3/6 per 3-lb. chip. English Cherries sold at 16/- to 18/- per half-bushel; while Gooseberries were plentiful at 3½d. per lb. Oranges continued to sell cheaply at 8/- to 16/- for Murcia 300 and 240 counts, and Sunkist Oranges were 28/- to 32/- per case. Palermo Lemons realised 8/- to 14/-; and Grape Fruits, 40/- to 44/-. English Grapes were in slow demand, and their prices declined slightly. Black Hamburgh making 2/6 to 3/- per lb., but the Belgian produce was steady at 2/- to 2/6. Prices for South African Pears were unchanged. Fresh consignments of Australian and New Zealand Apples included such varieties as Grannie Smith and London Pippin, which realised 14/- to 16/-, and 13/6 to 15/- respectively. Peaches averaged 10/- per dozen, and Melons 3/6 to 4/6 each.

Vegetable supplies were well maintained, and prices remained steady round the following quotations:—Lettuces, 1/9 to 2/6 per dozen; Cucumbers, 4/- to 6/-; Cauliflowers, 4/6 to 6/-; French Beans, 1/6 to 1/9 per lb.; Carrots, 1/- per bunch; Turnips, 1/- to 1/3; and Teneriffe Potatos, 13/- to 15/6 per case.

The cut flower market suffered from excessive supplies of Irises, and prices in consequence were low throughout the week. Blue varieties were most plentiful, and sold at 5d. to 7d. per dozen; white sorts made 10d. to 1/-; and other colours, 4d. to 6d. Scotch-grown blooms realised 10d. to 1/- for 12's, and 3d. to 5d. for 6's. Prices for special Sweet Peas advanced to 2/- per bunch, while those of ordinary quality realised from 9d. to 1/-. Carnations were worth 2/- to 4/6 per dozen; Roses, 4/- to 5/- per dozen; Stocks, 10d. to 1/- per bunch; Pyrethrums, 8d. to 9d.; Poppies, 6d. to 10d.; Marguerites, 2d. to 3d.; Paeonies, 8d. to 10d.; and Asparagus Fern, 9d. to 1/6.

SCHEDULES RECEIVED.

Royal Lancashire Agricultural Society.—Exhibition to be held at Burnley on July 29, 30, 31 and August 2; horticultural section to be held on July 29, 30 and 31 only. Secretary, Mr. R. Chawner, Derby House, Preston.

Yorkshire Agricultural Society.—Horticultural exhibition to be held at Harrogate on July 21, 22 and 23.—Manager of the horticultural section, Mr. Peter Blair, Trentham, Stoke-on-Trent.

National Sweet Pea Society.—Twenty-sixth exhibition to be held in association with the Cheltenham Floral Fete at the Montpelier Gardens, Cheltenham Spa, on June 30 and July 1.—Secretary, Mr. A. C. Bartlett, 19, Bedford Chambers, Covent Garden, W.C.2.

OATALOQUES RECEIVED.

Barr and Sons, 11, King Street, Covent Garden, W.C.2—Seeds.

Dulau and Co., Led., 34, Margaret Street, Oxford Circus, W. 1.—Books on Phyto-pathology and horticulture.

Foreign.

H. Le Blevenec, 163, Rue Victor-Hugo à Bois-Colombes (Seine), France.—Orchids.

GARDENING APPOINTMENTS.

Mr. G. Lammas, for the past three years Gardener to Mrs. Melville, Stratton House, Cirencester, Glos., as Gardener to Lord Wyfold, Wyfold Court, nr. Reading, Berkshire. (Thanks for 2/- for R.G.O.F. Box.—Eds.).

Mr. Howard Grace, recently Gardener to the Right Hon. Earl Temple, Newton Park, Bristol, and previously Gardener to Sir Edward Mountain, Bart., Norbury Park, Dorking, Surrey, as Gardener to Mrs. Fox, Brislington House, near Bristol.

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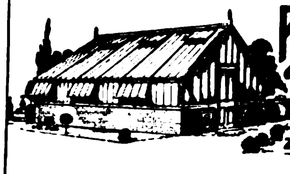

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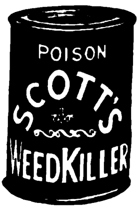

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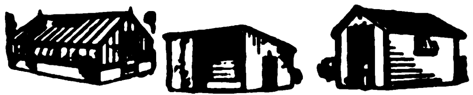

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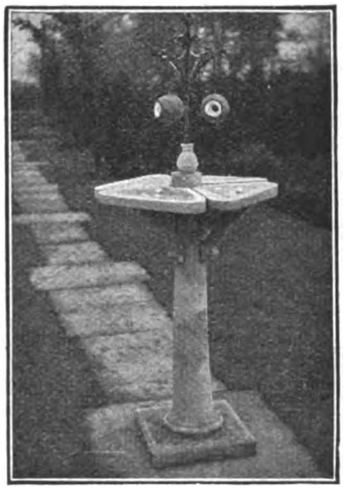

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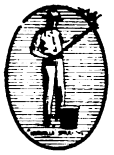

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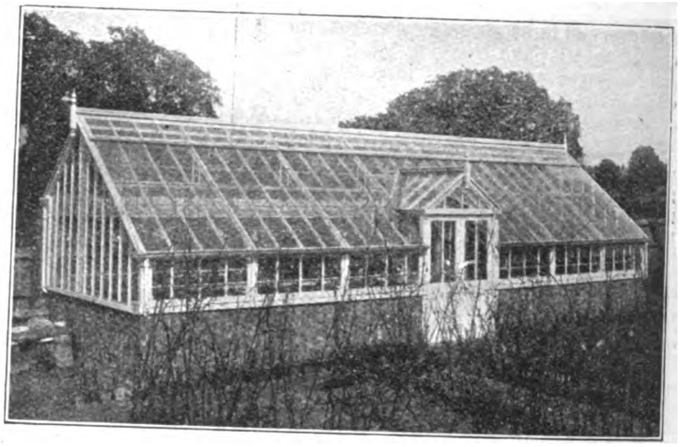

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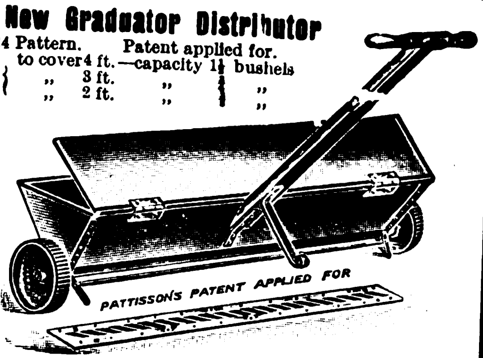

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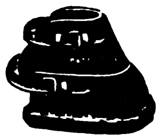

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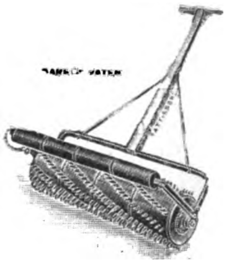

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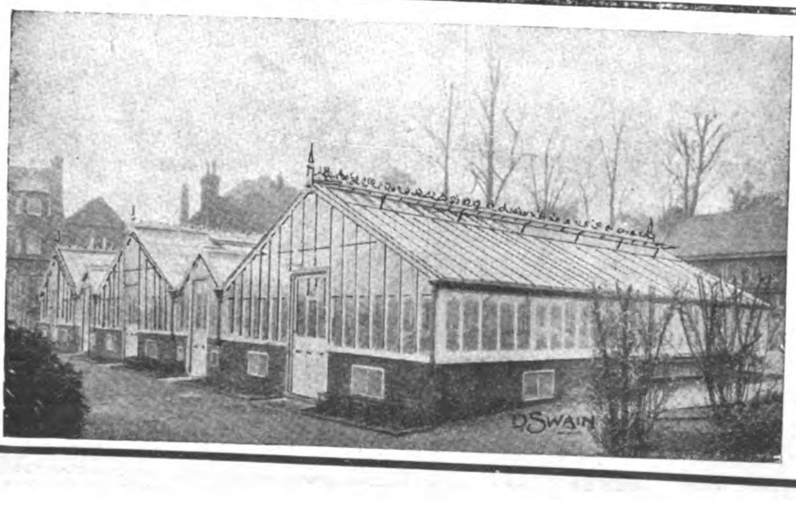

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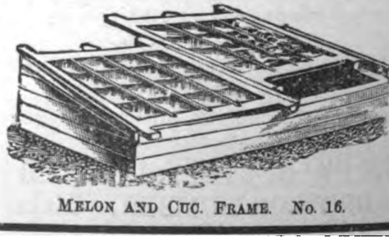

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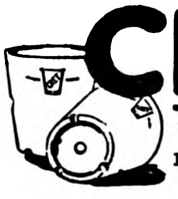

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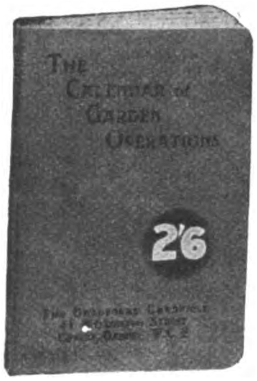

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JOURNEYMAN wanted inside fruit houses, 33/- per week with bothy, duty paid; about 25; copies references.—J. WILSON, Silverlands, Chertsey

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WANTED, PUPIL, either sex; good opportunity to learn cultivation of fruit and flowers and vegetables.—WHITE, Barton Seagrave Gardens, Kettering.

TRADE.

MANAGER wanted for 6-acre nursery, 3 glass, must be good organiser and capable of producing on a large scale for market.—MARKET, Box 63, 5, Tavistock Street, Covent Garden, W.C.2.

WANTED, thoroughly capable **HEAD WORKING GARDENER** for large nurseries growing for the trade in large quantities, Tomatoes, Cucumbers, Grapes, Chrysanthemums, pot flowers, Ferns and other produce; pleasure grounds and kitchen garden; growers kept and complete sales organisation. Must be thoroughly efficient and know the trade throughout and have excellent references; head gardener's lodge for suitable applicant.—Apply with copies of references, stating wages and any other particulars, DR. HERBERT THOMPSON, Battenhall Mount, Worcester.

FIRST-CLASS WORKING FOREMAN required, good general experience essential in the production of produce for retail business; age about 35.—Write full particulars to M. C. H., Box 66, 5, Tavistock Street, Covent Garden, W.C.2.

WANTED, FOREMAN in market nursery, chiefly Carnations; also two young MEN.—JEPPESON, Hampton, Middlesex.

WANTED, experienced **PROPAGATOR** for alpine and herbaceous plants, also shrubs, at Bishop's Stortford.—Apply, stating wages and experience, PULHAM & SON, 71, Newman Street, London, W.1.

WANTED, a married **MAN,** thoroughly competent to deal with the propagation and cultivation of flowering plants, including Chrysanthemums for market; house provided; state experience and wages required; Chingford district.—Apply, C. E. C., Box 41, 5, Tavistock Street, Covent Garden, W.C.2.

WANTED at once, single, thoroughly practical GROWER, Toms., Cues., Chrys., etc.; wages 40/-, Sunday duty 7/- extra, with bothy, milk, vegetables and attendance. Comfortable and permanency. —K. E. P., Box 62, 5, Tavistock Street, Covent Garden, W.C.2.

WANTED, first-class **FERN-GROWER** for commercial purposes; one that must be highly recommended; for one of the largest wholesale and retail growers in Canada.—JOHN SMITH, c/o Miller & Sons, Lauder Avenue, Toronto, Canada

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WANTED, on nursery, Surrey side of London, young man, experienced GROWER bedding plants; knowledge Chrysanthemums, Dahlias, Salvias, Alpines, Carnations, Tomatoes, forcing Tulips and cut flowers preferred; details of experience, references; must state wages required.—L. C. S., Box 47, 5, Tavistock Street, Covent Garden, W.C.2.

TWO single **MEN** wanted, not under 26, one experienced Cue. and Tomato Grower and potter; the other Leading Outside Hand of 4, shrubs, herbaceous plants and market garden; 48 hours winter, 53½ summer, overtime paid. State wages, age, references, etc.—GALLAGHER'S NURSERY, Andover, Hants.

WANTED, energetic young **MAN** with a good knowledge of indoor plants and execution of orders; age, experience and wages to DICKSON'S NURSERIES, LTD., Chester.

WANTED, a young **MAN** for general nursery work.—Apply, H. J. JONES, Ryecroft Nurseries, Hither Green Lane, S.E.13.

WANTED, young **MAN** to work under foreman, with some experience of Tomatoes Chrys., Carnations and Bedding stuff.—Apply, with references and wages, JAMES PAINE, Harold Nurseries, Clive Vale, Hastings.

TWO gentlemen **PUPILS** wanted for market garden; training on up-to-date commercial lines, all branches; premium required.—Box 10, Ashtead, Surrey.

HEAD SHOPMAN required, must have a good knowledge of all seeds, bulbs, sundries, etc., and be capable of making good displays both in the window and shop. A large and high-class trade is done, and applications are invited only from thoroughly capable and experienced men. A good salary is available for the right man.—Apply, stating age, if married, references and salary required, to H. S., Box 50, 5, Tavistock Street, Covent Garden, W.C.2.

SEED ASSISTANT wanted for wholesale packing counter, good knowledge vegetable and flower seeds; highest references; state wages; good opportunity for smart assistant.—E. W. KING & CO., Seedgrowers, Coggeshall.

WANTED, YOUNG MAN with some experience of the seed and plant trade, capable of ordinary book-keeping; state if can use typewriter.—Apply, with particulars, ROWLES, Seedsman, Market Street, Oxford.

SITUATIONS WANTED

Twenty words **2s.,** *and* **6d.** *for every succeeding eight words or portion thereof. (Advertisements at this special rate are only accepted direct from gardeners and nursery employees). Fee for having replies addressed to this office,* **1s.** *over and above the amount payable for* **all** *words appearing in the advertisement, including* **our own address.**

SUGGESTIONS FOR ADVERTISERS.

Before writing an advertisement, it is useful to look down the column and note the information contained in advertisements similar in character to your own. Important points which might otherwise escape the memory, may thus be brought to mind.

Write the advertisement in the centre of a large piece of paper (for example, a whole sheet of writing paper laid out flat) leaving plenty of space at top and bottom. If the name and address are to be included in the advertisement, place them at the end; if a box number is to be used, leave a generous space at the end of the advertisement, draw a line across the paper, and place the full name and address beneath the line.

No letter, or request for insertion is required; but in case of any doubt as to the proper classification the name of the section (such as "Situations Wanted, Trade") can be placed at the head of the advertisement. Such words will not be printed, or charged for.

It is important to send the correct amount in payment, as any variation causes delay (see rates at the head of each section).

No acknowledgment or receipt is sent in connection with these advertisements, but if an extra 7d. is added to the correct amount, a copy of the paper containing the advertisement will be sent post free.

An advertisement received after Tuesday may not, or if received after Wednesday cannot, be inserted the same week: but if fully paid, it will appear the following week, unless countermanded in the meantime.

PRIVATE.

SIR Chas. B. Barrington, Bart., Fairthorne Manor, Botley, Hants., recommends J. McBEAN (married, one child aged 10) his late HEAD GARDENER at Glenstal Castle, Murroe, Limerick, as a thoroughly capable, reliable, practical man, now disengaged but still at latter address. J. McB. has first-class practical knowledge and experience gained in both Scottish and Irish gardens.

GARDENER, HEAD of three or more, life experience, thoroughly competent Inside and Out. good references, age 48, married, no family.—S. G. PEARCE, The Lodge, Flower House, Beckenham Lane, Catford, S.E.6.

GARDENER, HEAD, seeks situation owing to death of employer; life experience in all branches, including Orchids; excellent references; age 41; married, one child.—ALLEN, 295, Tettenhall Road, Wolverhampton.

GARDENER, HEAD, life experience all branches; excellent references, highly recommended, age 37, married.—ALBERT TROW, The Cottage, Scotlands, Haslemere, Surrey.

11 F

SUPPLEMENT PLATE: A Hybrid Naegelia.

THE GARDENERS' CHRONICLE

ESTABLISHED 1841

No 4436

No. 2036. Vol. LXXIX. (THIRD SERIES) SATURDAY, JANUARY 2, 1926. Registered as a Newspaper. (with Supplement) PRICE 6d. POST FREE 7d.

SUBSCRIPTIONS—Inland or Foreign 30/- per annum, post free. *Entered at New York Post Office as second-class matter.*

Postal Address—5, Tavistock Street, Covent Garden, W.C. 2. Telegraphic Address—"Gardchron, Rand, London." Telephone—Gerrard 1543.

WAS IT THE ROOTS?

Remember that the roots may have been attacked, if the foliage was not. Be sure you cleanse the soil of woodlice, ants, grubs, etc., with XL ALL Grub-Killer. Of all nurserymen, seedsmen or florists.

XL ALL GRUB KILLER.

G. H. RICHARDS LTD.

234 Borough High Street, London, S.E. 1

CALDWELL & SONS specialise in Roses and Fruit Trees. Their Illustrated Catalogues for the present planting season will be gladly sent, post free, on application.—CALDWELL & SONS, Nurserymen, Knutsford.

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WATERER'S Alpine and Perennial Plants, including all the best in Lupins.

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CONTINUOUS FRUITING AND bounteous, uniform, handsome and a dark green is Dickson & Robinson's Bounteous Cucumber. 1/- per packet.

Complete SEED CATALOGUE sent gladly—no cost, no obligation, no solicitation.

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NOW IS THE TIME TO PLANT our noblest hardy perennial. The wonderful new Langport varieties are enchantingly beautiful, and the glorious flowers are unrivalled for garden or home decoration. The plants are surprisingly hardy and sweet-scented.

KELWAY'S NEW PAEONIES, COLLECTION "C." includes such exquisite tints as rose-pink, lilac-rose, rich rose, deep amethyst, cherry-red, crimson, purple-crimson, maroon-crimson, white, cream, faint blush, and peach; 30/- per dozen; 50 for £5 5s., carriage paid for cheque.

KELWAY & SON, The Royal Horticulturists,

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BUY BRITISH GOODS FROM A BRITISH FIRM

LAXTON'S SEEDS.—New Catalogue, post free on application, containing novelties for 1926. New Peas: Bedford Champion, 4 ft., early; Progress, 1 ft., early.—LAXTON BROTHERS, Seedsmen, Bedford.

HARDY PHLOXES.

IN all the new and most brilliant shades of colour. List now ready.

GUNN & SONS, Olton, Warwickshire.

SEND for H. J. JONES' CATALOGUE if you want the best Gold Medal Chrysanthemums, Hydrangeas, Michaelmas Daisies, Hardy Phlox, etc., free on application. Also H. J. Jones' Chrysanthemum Guide, 17th edition; 135th thousand; post free, 1/3.—RYECROFT NURSERIES, Lewisham, S.E. 13.

PERPETUAL-FLOWERING CARNATIONS for the Greenhouse and the Garden; catalogue free on application.—C. ENGELMANN, LTD., Carnation Growers, Saffron Walden, Essex.

SANDERS, ORCHID GROWERS,

St. Albans.

SUTTON'S SEEDS

A remarkable cropper.

SUTTON'S HUNDRED-FOLD PEA

dwarf, early.

Award of Merit, R.H.S.

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OUR New Edition (No. 96) of "Hardy Plants worth Growing" contains over 600 illustrations from photographs and much useful information in plain talk on Natural Gardening, Autumn Colours and Winter Berries, Spring Flowering Trees and Shrubs, Plants for Rock, Dell, Glen Bog, and Water Gardens, Shrubberies, Pergolas, bare places under trees, etc. Copies may be had gratis on application. Orders carriage paid.—V. N. GAUNTLETT & CO., LTD., Japanese Nurseries, Chiddingfold, Surrey.

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Write at once to

FIDLER & SONS,

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IPSWICH RARE SEEDS.—New Catalogue—really an encyclopaedia on gardening—describes 3,000 varieties of flower seeds, also all the best strains of vegetable seeds. Free on application to THOMPSON & MORGAN, London Road, Ipswich.

PLANT TUBS, Water Barrels and Casks of all sizes, new and second-hand.—Write for prices to ERNEST FRENCH & CO., LTD., Cody Road Cooperage, Canning Town, London, E. 16. Telephone Nos. Albert Dock 1036 and 1458.

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WEDNESDAY NEXT, JANUARY 6th, 1926.

IMPORTANT TRADE SALE

of Spring-flowering Bulbs and Roots in variety.

CASES OF GLADIOLUS and HERBACEOUS PLANTS
LILY-OF-THE-VALLEY,
Spiraeas, Begonias, etc., also
BAY TREES, PALMS, ASPIDISTRAS, AZALEAS,
etc., from Belgium.

MESSRS. PROTHEROE & MORRIS
will sell the above at their
CENTRAL SALE ROOMS,
67 & 68, CHEAPSIDE, LONDON, E.C.2

On Wednesday next, January 6th, 1926.

Catalogues on application.

STEVENS'S AUCTION ROOMS, LTD.
(Estd. 1760)
38, KING STREET, COVENT GARDEN,
LONDON, W.C. 2.

EVERY MONDAY and WEDNESDAY
at 1 o'clock each day.

STANDARD, DWARF AND CLIMBING ROSES
in new and popular varieties.

RHODODENDRONS, AZALEAS, FLOWERING PLANTS, SHRUBS, PERENNIALS, FRUIT TREES, ETC.

DUTCH BULBS
of first-rate quality, and lotted to suit all buyers, including:
Hyacinths, Tulips, Crocus, Scillas, Snowdrops, Daffodils, and Narcissus, Lilium Candidum, Japanese Liliums.

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On view mornings of Sales.

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PROTHEROE & MORRIS, Horticultural Market Garden and Estate Auctioneers, and Valuers, 67 and 68, Cheapside, London, E.C., and at Leytonstone, E. Monthly Horticultural Register had on application.

J. & A. McBEAN, Orchid Specialists, Cooksbridge, Sussex.

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WANTED.—Working Partner for landscape garden work and Mushroom growing. Good connection near London.—Apply, G. A., Box 7, 5, Tavistock Street, Covent Garden, W.C.2.

WANTED.—Working Partner with practical experience to develop and manage a small nursery for local and market trade. Applicants with initiative, energy, ambition, and some capital could make this a good opportunity.—C. R. N., Box 5, 5, Tavistock Street, W.C.2.

TENDERS.

BOROUGH OF ACTON.

EAST ACTON HOUSING ESTATE.

TENDERS are invited from Nurserymen and others for the supply of Green Privet.

Forms of Tender, Specification, etc., may be obtained from the Borough Engineer, Municipal Offices, Acton, W.3.

Tenders, in sealed envelopes, appropriately endorsed, to be delivered to the undersigned on or before 3 p.m., on Monday the 18th January, 1926.

The Corporation do not bind themselves to accept the lowest or any Tender, and canvassing members or officers of the Council, either directly or indirectly will disqualify.

WM. HODSON,
Town Clerk.

Municipal Offices,
Acton, W.3.
16th December, 1925.

PLANTS, &c., FOR SALE.

Small Classified Advertisements. Twenty words (or three lines including headline) **4s** *and* **1s** *for every succeeding eight words (or line or part of a line). Double rates for front cover. Fee for having replies addressed to this office,* **1s.** *over and above the amount payable for* **all** *words appearing in the advertisement, including* **our own address.** *Displayed advertisements,* **8s** *per inch, or* **10s.** *facing editorial matter.*

FERNS! CALADIUMS!!—Begonias, Palms, Crotons, Dracaenas, Gloxinias, Hydrangeas, Geraniums, Ericas, Lilies, Ferns and How to Grow Them, by J. E. SMITH, 3/6, post free. SMITH, London Fern Nurseries, London, S.W.9.

100,000 LARGE GARDEN FERNS, 30/- 100, variety; wanted 1,000 large Aspidistras for dividing. Catalogue free.—SMITH, Fernery, London, S.W.9.

CHRYSANTHEMUMS for Greenhouse and Garden; also Dahlias, Fuchsias, Show and Zonal Pelargoniums, and Coleus. Price list free on application.—J. W. COLE AND SON, The Nurseries, Peterborough.

STANDARD WEEPING ROSES. — Hardy Yorkshire grown, fine heads, 4½ to 5½ ft. stems, leading kinds, 5/- each; Standard H.Teas, leading kinds, 3/6 each. Lists of varieties on application. Carriage paid on 15/- orders and upwards. — From J. SLATER, Nurseryman, Skipton.

RHODODENDRONS, choice hardy kinds, 2 to 5 ft., Azaleas, Heaths, Kalmias, large stocks; catalogues free.—F. STREET, Heathermead Nurseries, West Chobham, Surrey.

250 COLTNESS GEM, grand lot, what offers?—to A. ALLARDICE, Burwarton, Bridgnorth, Shropshire.

BLACK CURRANTS. — Baldwins, Naples, Seabrooks, and Boskoop, 3, 4, and 5-year trees, 6/-, 7/- and 8/- per dozen; value in fruit first season. Reds and Whites same price; carriage paid per passenger train 2/- per dozen extra. Gooseberries, 3- and 4-year trees, best kinds only, 12/- per dozen, carriage paid.—From J. SLATER, Nurseryman, Skipton.

LOGANBERRIES, very large, long, dark red fruit, especially valuable for stewing, etc., make excellent jam of splendid flavour. Strong plants in 5-inch pots, 2/- each, 21/- per dozen; or extra strong from the ground, 1/- each, 10/6 per dozen.—L. R. RUSSELL, LTD., Richmond, Surrey.

VINES, extra strong one-year canes, well-ripened and rooted in 9-inch pots. Guaranteed clean and true to name, 7/6, 10/6 each, F.O.R. Special quotation for quantities. Trade offers solicited, enquiries and inspection invited.—BAKER, Melton Constable, Norfolk.

LIST of Alpine and Herbaceous Seeds now ready, copy free on application.—MANAGER, Lissadell, Sligo.

ONION for Exhibition—Cranston's Excelsior and Ailsa Craig. Raisers' selected seed in Wilson's pockets only; post free, 2/6, 1/- and 6d. per packet. JOHN WILSON (Hereford), LTD., 13 (C), Commercial Street, Hereford.

SEAKALE, forcing, 25/-, 20/-, 15/- 100; planting thongs, 2/6 to 5/6 100.—H. C. GARDNER, Ruxley, Claygate, Surrey.

PLANTS WANTED.

WANTED, offers of Calanthe in variety, to A. B. C., Box 9, 5, Tavistock Street, Covent Garden, W.C.2.

WANTED, six specimen good-shaped Orange trees, 6 to 7 feet high, with ripe fruit, or six flowering Myrtles, same size.—Write, stating dimensions of tubs, etc., and price, to WILLS & SEGAR, LTD., Royal Exotic Nursery, South Kensington, S.W.7.

MISCELLANEOUS.

YOU CAN'T GET WET in Beacon OILSKINS. They're Blizzard-proof! Get a Beacon coat now and laugh at the weather. The Big Beacon Catalogue shows all styles. Men's Coats from 15/6; Leggings, 5/-; Ladies' Lightweight Coats 25/-; Children's 13/6; 2-buckle Garden Clogs, 5/11 (post 9d.). Send postcard at once for the 10) page book of Weather Comfort.—BARBOURS, LTD., 66, Beacon Buildings, South Shields. (1)

IRON AND WIRE FENCING for Gardens, Ornamental Iron and Wire Work of every description. Catalogue G.C. 156; Iron Fencing and Tree Guards, Catalogue G.C. 65; Wood and Iron Gates, Catalogue G.C. 163; Kennel Railing, Catalogue G.C. 86; Poultry Fencing, Catalogue G.C. 70. Ask for separate lists.—BOULTON & PAUL, LTD., Norwich.

BIRDS' BATHS, Sundials, Vases, Statuary, Birds' Nesting Boxes, etc.—Catalogue (No. 3), free.—MOORTON, 60, Buckingham Palace Road, S.W.1.

STONE PAVING.—Crazy and rectangular York Garden Paving, Copings, Steps, etc., Grit and other Rocks for Rock Gardens; Flat Stone Rubble for "Dry" Walls, Nottingham Marl. Large or small quantities carriage paid to any railway station in England. HODSON & SONS, LTD., Castlegate, Nottingham.

SELECTED GREY WESTMORELAND Weathered and Waterworn Mountain Limestone Rockery. The finest Rockery Stone; also York Stone Garden Paving. — HERBERT BROOK, High Road, Whetstone, N. 20, and Lightcliffe, Yorkshire.

GENUINE CUMBERLAND TURF Weathered Mountain Rockery, Crazy Paving. Special Red Shale for Hard Courts. — KERSHAW, LIMITED, Garden Makers, Keighley.

KETTERING LOAM.

FOR SALE, excellent turf loam for gardening purposes. Fresh cut. F.O.R. Geddington Station, L.M. & S. Railway. For further particulars apply, A. STANTON, Foreman, Geddington, Kettering.

TURF, Loam, Manure and cultivated turf for bowling greens, best lawns, etc.; fibrous turf mould, from heap three years old, a very rich soil; recommended for top-dressing, digging in borders; farmyard manure.—FROGLEYS, Hoddesdon, Herts.

COAL, Coke and Anthracite.—Trucks to any station. House Coal from 19/- per ton pit; Welsh Anthracite, 26/6 pit; Sem Anthracite (registered), 22/6; semi Anthracite, 20/-; Horticultural Coke, 16/-.—BUCKLE COLLIERY CO., 59, Hales, Cheltenham.

SEWAGE DISPOSAL for country houses, factories, farms, &c.; no emptying of cesspools; no solids; no open filter beds; everything underground and automatic; a perfect fertiliser obtainable. — WILLIAM BEATTIE, 9, Lower Grosvenor Place, Westminster.

HEAD GARDENER and good **SECOND** seek situations, together or otherwise; thoroughly experienced in all branches, including Orchids; cottages required.—H. W., Box 8, 5, Tavistock Street, Covent Garden, W.C. 2.

COL. BLAIR recommends his **HEAD GARDENER**, G. MARSH; life experience in all branches; good references, married, one child; age 38.—Ashwell Hall, Oakham, Rutland.

GARDENER, HEAD, or HEAD WORKING, desires re-engagement; life experience all branches, highly recommended present and past employers; age 42, married, child aged 8.- CARTER, Stoodleigh Gardens, Tiverton, Devon.

GARDENER, HEAD, or good SINGLE-HANDED; experienced Inside and Out, thoroughly competent; age 31, no family, 3½ years here; cottage.—E. S., 115, Plumstead Common Road, Plumstead, S.E.18.

LADY PEARSON highly recommends W. Stephenson as **HEAD WORKING GARDENER** where six or more are kept; excellent all-round man, keen, energetic, and thoroughly experienced in all branches of horticulture; 21 years here, 16 as Head, leaving through death; age 45, abstainer, married, one boy 14.—W. STEPHENSON, Brickendonbury Gardens, Hertford.

GARDENER, HEAD WORKING, life experience in all branches. Highest references; married; home counties preferred.—C. W. SLATTER, The Lodge, Upton Court, Upton, Nr. Slough.

GARDENER, HEAD WORKING, where three or more kept; life experience all branches in nobleman's gardens. Personal references from last situation; age 38.—ROBINSON, 23, Tremlett Grove, Highgate, N.19.

GARDENER, HEAD WORKING; life experience in all branches; good references; married, no family, disengaged.—ELLIS, Nr. Earley Station, Nr. Reading, Berks.

HEAD WORKING GARDENER, disengaged, life experience all branches; last place nearly six years; no family; late employer recommends; keen, active.—STEWART, Warmley House Gardens; Warmley, Bristol.

GARDENER, HEAD WORKING, 40, life experience all branches, including landscape work; boy 14 at home.- J. H. WRENCH, Hatton, Warrington.

GARDENER, SINGLE-HANDED, requires situation; age 24, married, no family; good references. Please state wages with cottage.-A. STEED, Lockley, Welwyn, Herts.

GARDENER, SINGLE-HANDED, seeks situation, Inside and Out; life experience; single.—H. R., The Cottage, Besborough, Devizes, Wilts.

GARDENER, SINGLE - HANDED or SECOND of several; good references, Inside and out; married when suited; southern counties preferred.—A. CRESSWELL, Tyntesfield Gardens, Flax Bourton, Somerset.

GARDENER, SINGLE - HANDED or UNDER; age 26, married, one child; life experience all branches; excellent references.—C. F. E., Box 4, 5, Tavistock Street, Covent Garden, W.C.2.

HEAD gardener confidently recommends SECOND GARDENER; Grapes Peaches, Nectarines, Melons, forced Strawberries, Carnations, Chrysanthemums, etc.; thoroughly trustworthy, single.—Apply, SECOND GARDENER, The Park Gardens, Cirencester.

UNDER GARDENER, age 23, 7 years kitchen and pleasure grounds; London district.—L. WINDSOR, 91, Turkey Street, Waltham Cross, Herts.

UNDER GARDENER seeks situation; experienced kitchen garden and pleasure grounds; married, two children; good rafehences.—MEREDITH, Inglewood Gates, Hungerford, Berks.

FOREMAN or **SECOND** seeks situation, Inside; good references; single, age 33. — E. WARRILOW, c/o — Fuller, Deanery Cottages, South Malling, Lewes, Sussex.

FOREMAN, Inside or General, 16 years' experience in good establishments; Vines, Melons, Peaches, Carnations, Mums., decorations; single, disengaged.—Particulars to and from S. W. BAKER, Sunnymead, Gaddesby, Leicester.

GARDEN LABOURER wants situation. Landscape or private; good spademan or odd man; good references.—C. B. GALE, 15, Mortimer Crescent, N.W.6.

YOUNG MAN seeks post on private estate; 6½ years' experience in electric plants and all makes of engines; willing to be useful.—H. PELL, Foxhill, Swindon, Wilts.

TRADE.

FOREMAN, general landscape, specialises rock gardens, all kinds of masonry, lakes, planting; capable of management. B. S. C., Box 1, 5, Tavistock Street, Covent Garden, W.C.2.

CARNATION GROWER and PROPAGATOR, used to growing on large scale; 25 years' experience; age 46.—G. W. U., Box 3, 5, Tavistock Street, Covent Garden, W.C.2.

PRACTICAL MAN requires situation any capacity; growing, market or retail; jobbing, landscape, etc., disengaged.—M., 9, Milton Road, Acton, W.3.

YOUNG MAN, 20, very keen, 4 years' experience in Roses, trees and shrubs, requires situation.—T. E., Box 6, 5, Tavistock Street, Covent Garden, W.C.2.

FORM OF SUBSCRIPTION TO THE GARDENERS' CHRONICLE

From

Name ....

Address ....

....

.... 19

Please send me **The Gardeners' Chronicle**

for .... *Months, commencing* ....

for which I enclose P.O. ....

Please note that all copies sent direct from this office must be paid for in advance.

12 *Months*, 30*s*.; 6 *Months*, 15*s*.; 3 *Months*, 7*s*. 6*d*.; *Post Free.*

Receipts for less than three months' subscription will not be sent unless [illegible]ally asked for.

All remittances to be made payable to the GARDENERS' CHRONICLE, Ltd., and sent to 5, TAVISTOCK STREET, COVENT GARDEN, LONDON, W.C. 2

THE GARDENERS' CHRONICLE.

Scale of Charges for Advertisements

Advertisements intended for insertion in the next issue MUST reach THE PUBLISHER not later than TUESDAY, 5 p.m.

	Ordinary positions.	Facing matter or bac[illegible]
Page	£12 0 0	[illegible]
½-Page	6 0 0	[illegible]
¼-Page	3 0 0	[illegible]
Column	4 0 0	[illegible] 0 0
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SMALL ADVERTISEMENTS.

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First 3 lines (not exceeding 20 words), 2/-, and 6d. for every additional 8 words or portion thereof.

Advertisements at this Special Rate are payable in advance, and are only accepted direct from Gardeners, etc.).

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On front page advertisements no discounts are allowed.

On a series of other advertisements, if ordered in advance, they are allowed as follows :—

For three insertions, 5%; thirteen, 10%; twenty-six, 15%; fifty-two, 20%.

All series must be arranged to attain completion within twelve months.

Advertisers may have replies to their advertisements addressed to the GARDENERS' CHRONICLE Office.

A fee of 1s. is charged for this service, and initials, Box number and our own address must also be included in the number of words paid for.

Cheques and postal orders are to be made payable to GARDENERS' CHRONICLE, LTD., and crossed " & Co."

5, Tavistock Street, Covent Garden, W.C. 2.

Telegrams " Gardchron
Rand. London."

Telephone :
Gerrard 1543.

FIRST IN 1808. FOREMOST IN 1926.

CATALOGUES, PLANS AND ESTIMATES FREE.

The proved efficiency of **WEEKS'S GLASSHOUSES** is the outcome of practical experience in their manufacture as specialists for more than a hundred years, both in the detail of their construction and the materials used.

HEATING APPARATUS REPAIRS carried out promptly.

J. WEEKS & Co. (Chelsea)
HORTICULTURAL AND HEATING ENGINEERS,
92, VICTORIA STREET, WESTMINSTER, S.W. 1

Representatives sent to any part of the kingdom to advise and take particulars of proposed work.

FOSTER & PEARSON, LIMITED,
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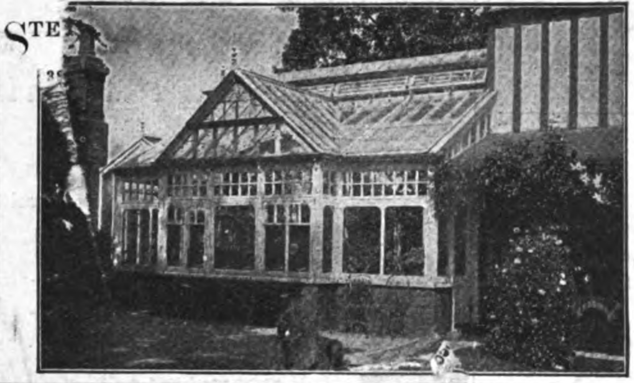

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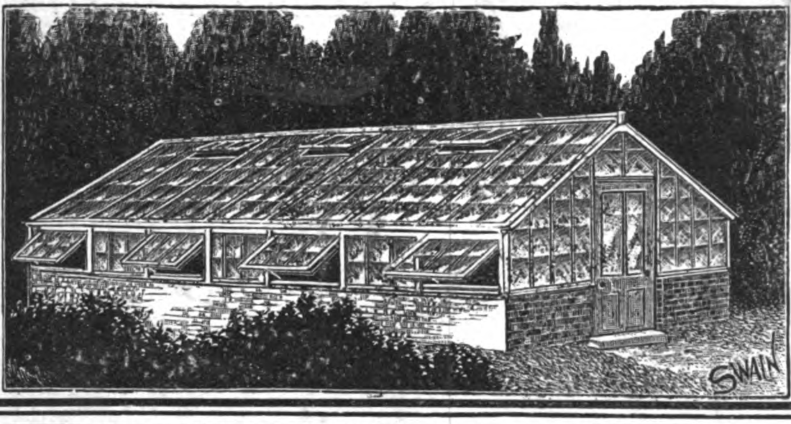
GOOD Greenhouses last—others do not.

The ROBIN HOOD BOILER reduces the fuel bill and saves labour.

Estimates on application Free.

DAVID SWAIN & CO., HOT HOUSE BUILDERS, **101, Sussex Road, Holloway, LONDON, N. 7.**



PLANT HOUSES
FRUIT HOUSES
GARAGES
BUNGALOWS
HEATING APPARATUS
COTTAGES AND BUILDINGS FOR ESTATES
GARDEN FRAMES, ALL KINDS

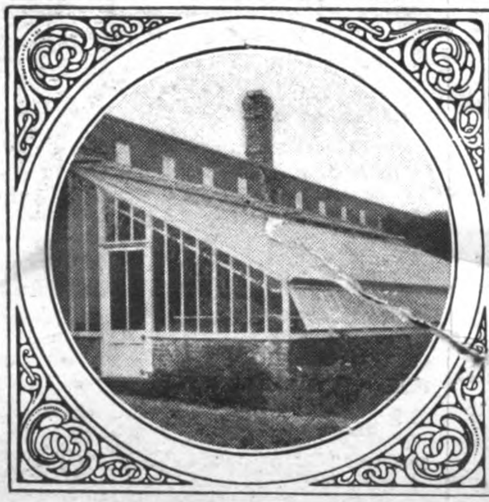
TESTIMONIAL:

Heather Glen,
Ensbury Park,
Bournemouth.

"Am quite pleased with Frames."
July, 1924. G.H.S.

TELEPHONE:
NORTH 2807.

MELON AND CUC. FRAME, No. 10.



Glass-house Repairs

The economical and efficient repair of Glass houses is not a job for a builder—nor a carpenter—nor a glazier. It requires considerable skill and technical ability. Our unrivalled experience in the design and construction of every form of glass-house fits us to undertake their expeditious repair in the most inexpensive manner.

Wm Duncan Tucker & Sons LTD
ESTABLISHED - 1830
TOTTENHAM. N.15.

G.A. 4282

Printed by H. M. POLLETT & Co., LTD., Fann Street, London, E.C. 1, and published weekly by THE GARDENERS' CHRONICLE, LTD., 5, Tavistock Street, Covent Garden, W.C. 2, Saturday, January 2, 1926.

11F

THE GARDENERS' CHRONICLE

ESTABLISHED 1841

Nº 4461

No. 2061. Vol. LXXIX. { THIRD SERIES } SATURDAY, JUNE 26, 1926. Registered as a Newspaper. PRICE 6d. POST FREE 7d.

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Postal Address—5, Tavistock Street, Covent Garden, W.C. 2. Telegraphic Address—"Gardchron, Rand, London." Telephone—Gerrard 1543.

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CALDWELL'S have a large and up-to-date collection of Herbaceous and Alpine Plants, and respectfully invite intending purchasers to view them. Illustrated Catalogue gladly sent on application.—CALDWELL & SONS, The Nurseries, Knutsford.

WATERER'S Gold Medal Rhododendrons, Azaleas, rare hardy shrubs, alpine and perennial plants, bulbs, vegetable and flower seeds for summer sowing. Catalogues free.

JOHN WATERER, SONS AND CRISP, LIMITED.
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HARDY PERENNIALS and Alpines for the Flower and Rock Garden, and the most suitable Vegetable Seeds for summer sowing. Finest selected strains and tested growth. Special lists free.—BARR & SONS, 11, 12, 13, King Street, Covent Garden, London, W.C.2.

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ONE plant each:—Aizoon Rex, apiculata, Biasoletti, Burseriana minor, Bilekii, coriophylla, dalmatica, Haagii, longifolia, longifolia x cochlearis, Patraschii, splendens.—7/6 post free.—MANAGER, Lissadell, Sligo.

THE PRIDE OF THE GREENHOUSE. The CALCEOLARIA is the pride of the greenhouse. Every keen gardener appreciates that, and shows (quite justifiably) unalloyed satisfaction in his success with this striking flowering plant. A house or stage of it is assuredly a magnificent spectacle. The large "slippers" or pockets profusely borne, beautifully and variously blotched and stippled, the colours rich and velvety, compel the eye and the admiration. All this points very definitely to the need for, and the value of, starting with a strain extra good, or much of the care and skill expended must (will) fall short of the ultimate splendid development. Our strain, widely grown, is, in every way, particularly fine and good. Try it. Try (if you deem it best to make haste slowly) one of the smaller packets alongside your present strain. You can't go wrong with our fine strain of the "Herbaceous" CALCEOLARIA. Seed 1/6, 2/6 and 3/6 per packet according to the quantity of seed.

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The King's Seedsmen MANCHESTER

WHEN admiring in flower

PAEONIES, DELPHINIUMS, PYRETHRUMS, LUPINS, and other choice border plants, take notes of the names and send us your orders, and we will send the plants at once or at the best time for planting. Our Paeonies and Delphiniums can be seen at Langport throughout June. Buy British plants and be proud of them. 360 International and other Diplomas, Gold and Silver Medals, Gold Medal Three Counties Show, Gloucester, June 8th, 1926, awarded to

KELWAY & SON,

The Premier Raisers of Hardy Herbaceous Plants,

LANGPORT, SOMERSET.

RIVERS' FRUIT TREES, Roses, Vines, Figs, Oranges, and Orchard House Trees are of first class quality, and a large and select stock is always on view. Inspection invited. Price list, post free, on application.—THOS. RIVERS AND SON, LIMITED, The Nurseries, Sawbridgeworth, Herts.

PERPETUAL-FLOWERING CARNATIONS for the Greenhouse and the Garden; Catalogue free on application.—C. ENGELMANN, LTD., Carnation Growers, Saffron Walden, Essex.

WM. DUNCAN TUCKER and Sons, Ltd., Lawrence Road, South Tottenham, N.15, Conservatories, Winter Gardens, Vineries, Peach-houses, Portable Buildings, etc.

SANDERS, ORCHID GROWERS,
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SUTTON'S SEEDS

FOR SUMMER AND AUTUMN SOWING

Flower Seeds	Complete
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SUTTON & SONS,

The King's Seedsmen, READING.

HARDY PHLOXES.

IN all the new and most brilliant shades of colour. List now ready.

GUNN & SONS, Olton, Warwickshire.

JAMES GRAY (CHELSEA), 92, Victoria Street, S.W.1.—Greenhouses, etc. Plans and estimates free.

BEGONIAS.—Gloire de Lorraine, Turnford Hall, Mrs. Rothschild, Agathae; rooted cuttings, 3/6 doz.; 24/- 100. The King, 4/6 doz.; 33/- 100. Verbenas, true stock from cuttings, transplanted and stopped: Miss Willmott, 3/- doz.; 21/- 100. Lovely Blue, Princess of Wales, Queen of Whites, 3/- doz. Carriage Paid, c.w.o.—THE DORSET NURSERIES, Blandford.

CINERARIAS.—Grandiflora, compact habit and magnificent heads of bloom. Stellata, Improved new hybrids, Cactus recurved florets. Strong, clean, transplanted, ready for potting, 2/6 doz., 15/- 100. Primulas: Sinensis, robust and giant-flowered, separate colours, strong, transplanted, 2/6 doz., 15/- 100. Calceolarias: herbaceous, Dalkeith Park Strain; strong, clean, transplanted, 2/6 doz., 15/- 100. Gloxinias: erect-flowered, strong, ready for 3½-in. pots, 2/6 doz., 15/- 100. Carriage Paid.—H. H. MAW & SON, Friarwood Nurseries, Pontefract.

SCOTCH CABBAGE AND OTHER PLANTS.

FINE Spring-sown Plants off best stocks:—Winningstadt Cabbage, Ormskirk Savoys and Curled Greens, 7/6; Cauliflower (Walcheren) and Broccoli, 10/-; Lettuce (Cabbage and Cos), 5/-; all per 1,000; bags free and carriage paid per passenger train; cash with orders.—JOHN GILLIES, PRESTONPANS, LIMITED, Prestonpans, East Lothian. Largest Cabbage Plant Growers in Britain. Telegrams: "Plants," Prestonpans. Telephone: 24 Prestonpans

SALES BY AUCTION.

WEDNESDAY NEXT, JUNE 30th.

Consignments of
BAY TREES, PALMS ASPIDISTRAS
and other decorative plants from Belgium.

MESSRS. PROTHEROE & MORRIS
will sell the above
at their
SALE ROOMS,
67 & 68, CHEAPSIDE, LONDON, E.C.2.
Catalogues on application.

BUSINESSES FOR SALE.

NURSERYMAN'S, Florist and Seed Business in market town, Huntingdonshire, comprising freehold nursery of two acres, with over 400 feet glass; well stocked, good garage, packing shed, etc. Shop and house in centre of town, rented at £40 yearly. Price, including freehold nursery with stock, crops, motor van, etc., complete, £875. £250 can remain. Present owner here 22 years.—Apply, AUBREY & CO., 96, Newgate Street, E.C.1.

COMPACT Nursery in Bournemouth, comprising 2¼ acres of land with two cottages, each containing four rooms and scullery, good brick out-buildings, and eight glasshouses totalling 375 feet run. All in good condition and well stocked; leasehold, 62 years unexpired, ground rent £12. Price, complete with crops, £1,550, of which part can remain.—Apply, AUBREY & CO., as above.

FREEHOLD Nursery for Sale, Twickenham district. 20 houses with new modern heating, 8-roomed residence, gas, water, telephone. Easy access to markets and railway.—ROBERT GREEN, 1911, LTD., 28, Crawford Street, W.1.

NURSERY for Sale, 7 miles from Birmingham, growing district, 3¼ acres; high-class Alpine and general; landscape work, etc. In good condition and well stocked. Three heated greenhouses; new sectional boiler; 70 ft. frames, packing sheds, stabling, etc.; six-roomed house, bath h. and c., own water supply. Price Freehold, including all stock, etc., £2,800.—B. H. S., Box 43, 5, Tavistock Street, Covent Garden, W.C.2.

PARTNERSHIP.

PARTNERSHIP or interest desired by practical grower. Carnations preferred; about £500, but not essential.—X. Y. Z., Box 52, 5, Tavistock Street, Covent Garden, W.C.2.

TENDERS.

METROPOLITAN BOROUGH OF ISLINGTON.

THE Council of the Metropolitan Borough of Islington invite Tenders for the supply and delivery of bulbs to public gardens in the Borough.

Form of Tender and all particulars may be obtained upon application to the Borough Engineer.

Tenders, endorsed "Bulbs for Public Gardens," must be received by the undersigned not later than 12 noon on Tuesday, the 29th June, 1926.

The Council does not bind itself to accept the lowest or any Tender.

By Order,
C. G. E. FLETCHER,
Town Clerk.

Municipal Buildings,
Upper Street, Islington, N.1.
16th June, 1926.

WEMBLEY URBAN DISTRICT COUNCIL.

PRIVET AND LAURELS.

THE above Council invite Tenders for the provision, planting and maintenance for a season of 5,000 [illegible] and 2,000 Laurels at Christchurch Housing [illegible] Road, Wembley.

Furth[illegible] be obtained from the undersigned, t[illegible]ders in the envelope supplied must be delivered [illegible] than noon on Wednesday, the 7th day of July,

The Council do not [illegible]lves to accept the lowest or any tender.

[illegible] R. W. CHAPMAN,
Engineer and Surveyor.

Council Offices,
Wembley, Middx.
23 June, 1926.

NOTICE.

HAVE YOU PROVIDED? See United Horticultural Benefit and Provident Society's Advertisement on Page vi.

EXHIBITIONS.

Royal Welsh Agricultural Society's
ANNUAL SHOW
August 4th, 5th and 6th, at
BANGOR, NORTH WALES
Exclusive classification for
HORTICULTURE
Herbaceous Plants, Cut Flowers, Fruit, Vegetables in collection and individual.
FIFTY - GUINEA CHALLENGE CUP
offered by Messrs. Clay & Son for 12 Cut Roses
Judges: MR. J. MILLS and MR. JOHN REES.
Schedules and further particulars from—
The Secretary, Llys Gwynedd, Bangor, N. Wales.

GUILDFORD AND DISTRICT
GARDENERS' ASSOCIATION
FOURTH
ANNUAL SHOW
GUILDFORD
14th JULY, 1926.
OPEN CLASSES FOR SWEET PEAS,
ROSES, CARNATIONS, Etc.
Gold and Silver Medals for TRADE EXHIBITS
Hon. Show Secretary,
"Mansard," Pilgrim's Way, Guildford.

LEEDS FLOWER SHOW
ROUNDHAY.
JULY 13th and 14th, 1926
(LEEDS TERCENTENARY WEEK).
THE ROUNDHAY (LEEDS)
HORTICULTURAL SOCIETY'S SHOW,
in conjunction with
THE NATIONAL ROSE SOCIETY'S
JUBILEE
PROVINCIAL GREAT EXHIBITION OF
ROSES,
IN ROUNDHAY PARK, LEEDS.
For Schedules apply:—The Hon. Secretary,
67, Jackson Avenue, Roundhay, Leeds.

ROYAL LANCASHIRE
AGRICULTURAL SOCIETY.

GREAT HORTICULTURAL SHOW
AT
BURNLEY, JULY 29th to 31st.
For Schedules apply—
PETER BLAIR,
Trentham, Stoke-on-Trent
ENTRIES CLOSE JUNE 30th.

PLANTS, &c., FOR SALE.

Small Classified Advertisements. Twenty words (or three lines including headline) **4s.**, *and* **1s.** *for every succeeding eight words (or line or part of a line). Double rates for front cover. Fee for having replies addressed to this office,* **1s.** *over and above the amount payable for all words appearing in the advertisement, including* **our own address.** *Displayed advertisements,* **8s.** *per inch, or* **10s.** *facing editorial matter.*

PALMS, Phoenix Canariensis, Chamerops Excelsa, Kentia Forsteriana, Cocos, Flexuosa, and Phoenix Roebelinii. New Price List now out. Also a quantity of Dracaenas, Indivisa, Veitchii, and Bruanti, to offer in all sizes. Fine lot of stuff.—For price list, apply ROBERT GREEN (1921), LTD., 28, Crawford Street, London, W.1.

FERNS! CALADIUMS!!—Begonias, Palms, Crotons, Dracaenas, Gloxinias, Hydrangeas, Geraniums, Ericas, Lilies. Ferns and How to Grow Them, by J. E. SMITH, 3/6 post free.—SMITH, London Fern Nurseries, London, S.W.9.

100,000 LARGE GARDEN FERNS, 30/- 100, variety; wanted 1,000 large Aspidistras for dividing. Catalogue free.—SMITH, Fernery, London, S.W.9.

RARE Primula and Alpine Seeds, from large (2,000) collection. Also seedlings and plants. Lists free.—Rev. F. J. ANDERSON, Glen Hall, Leicester.

CHINESE, Himalayan, and other Rhododendrons, on their own roots. Rare Shrubs, Alpines, Herbaceous Plants, Aquatics, Lilies. Write for Catalogues. —G. REUTHE, Keston, Kent.

PRIMLEY BOTANIC NURSERY solicits enquiries for novelties and rarities.—Paignton, South Devon.

PLANTS WANTED.

WANTED, a few pounds Rhododendron ponticum seed, 1925 crop, well cleaned.—Offer to, S. D. S., Box 49, 5, Tavistock Street, Covent Garden, W.C.2.

WANTED, Snowdrop Bulbs, Singles, Doubles or mixed. Now is the time to lift. Also Winter Aconites, Narcissus and Daffodil Bulbs. Top Price paid for prompt delivery.—Write, stating quantity to offer, and price, to C. W. J., Box 42, 5, Tavistock Street, Covent Garden, W.C.2.

HEAD GARDENER (Scotsman) wishes engagement, experienced all departments, keen and interested; present employer recommends.—HEAD GARDENER, Beau Manor, Wood House, Loughborough.

HEAD GARDENER requires situation where several men employed; competent in all branches of horticulture, life experience, excellent references, leaving through estate being sold; married; preference to situation in or near town or village.—W. H. WOOD, Gardens, Eastwood, Roehampton Lane, Putney, S.W.15.

GARDENER, HEAD, or good SECOND; all-round experience gained in good establishments; age 27, married; please state wages with cottage; disengaged when suited.—W. R. PHIPPS, Brickendon Grange, Hertford.

GARDENER, HEAD, or good SECOND, life experience gained in good establishments; excellent references; age 32, married, no family.—A. HOLLAMBY, Front Lodge, Gadsden, Hayes, Kent.

HEAD WORKING GARDENER seeks situation; practical life experience all branches in good establishments; methodical, quick, active, highest references; age 40, no family.—Apply, DAY, Norton Bavant, Warminster, Wilts.

HEAD GARDENER, WORKING, where two or three are kept; life experience in all branches gained in good establishments; married, excellent references.—C. COOMBER, 102, Silverdale Avenue, Westcliff-on-Sea.

COL. R. BARCLAY highly recommends his HEAD WORKING GARDENER, 20 years' reference, to any lady or gentleman requiring the services of a capable man. Estate being sold.—F. W. BUSSON, Castle Hill, Rotherfield, Sussex.

HEAD WORKING GARDENER, life experience all branches; excellent references, middle-age; married, one boy.—CLARY, Gardeners' Cottage, Moorland, Bromham, Bedford.

E. GRAHAM SIMPSON, Esq., recommends his HEAD GARDENER, WORKING, experienced all branches, excellent references, age 37, abstainer.—A. SEABROOK, c/o Batchelor, Cooks Cottages, Wigginton, Tring, Herts.

GARDENER, HEAD WORKING, thoroughly experienced in growing Grapes, Peaches, Carnations, fruit, flowers and vegetables, etc; highly recommended; 7 years present situation.; married, 2 children, ages 12 and 11.—TAYLOR, Manorhill, Selkirk, Scotland.

HEAD WORKING GARDENER requires situation; life experience Inside and Out; excellent references; married, aged 30.—ACKFORD, Chearsley, Aylesbury, Bucks.

GARDENER, HEAD WORKING of two or three, thoroughly experienced and capable, all-round man; age 40, married, 2 children.—F. G. S., Box 60, 5, Tavistock Street, Covent Garden, W.C.2.

GARDENER, HEAD WORKING, where one or two are kept; practical experience Inside and Out; good personal and experienced characters; 8 years last place, 8 previous; cottage; disengaged.—A. WOODBRIDGE, 111, New Road, Croxley Green, Herts.

A. J. PATEN, Esq., highly recommends G. MILLER as HEAD WORKING GARDENER where 3 or 4 are kept; life experience in all branches. gained in large establishments, including Putteridge Park and Apethorpe Hall.—Address, The Gardens, The Lindens, Peterborough.

GARDENER, HEAD WORKING, life experience all branches in good establishments; 5½ years and 1 year head of 5; good references, age 38, 2 children, 9 and 7.—FRIEND, Wexham Springs, Stoke Poges, Bucks.

GARDENER, HEAD WORKING or SINGLE-HANDED, seeks situation; life experience, age 33, married, 2 children, excellent references; 6 years previous situation.—L. WALTER, High Street, Edenbridge, Kent.

GARDENER, HEAD WORKING, or SINGLE-HANDED, Inside and Out, married, no family, 3½ years present place, good references.—G. S. T., Box 56, 5, Tavistock Street, Covent Garden, W.C.2.

GARDENER, HEAD WORKING or SINGLE-HANDED, private or commercial life experience all branches, Tomatoes a speciality; age 35, married, 1 child, excellent references; disengaged when suited.—W. MASSEY, Keele Hall Gardens, Newcastle, Staffs.

GARDENER, HEAD WORKING or good SECOND, life experience all branches, vines, Peaches, Melons, Carnations, etc.; 4 years here, age 33, married, excellent references.—PALMER, Brockhurst, East Grinstead, Sussex.

GARDENER, SINGLE-HANDED or HEAD; 49, single, experienced Inside and Out; 5 years reference.—GRIFFITHS, Anchorage, Alpha Road, Birchington, Kent.

GENTLEMAN recommends his late GARDENER as SINGLE-HANDED, commercial or otherwise; experienced Inside and Out; single.—H. IDDENDEN, 66, Havelock Street, Canterbury.

GARDENER, SINGLE-HANDED or otherwise, seeks situation, age 35, married, one boy age 7; life experience, understands electric light plant; well recommended.—J. ANDREWS, Shire Lodge, Corby, Kettering.

GARDENER seeks situation, SINGLE-HANDED or with help; good, practical, all-round man, Inside and Out; wife would assist house if required.—SMITH, c/o F. Brickwood, Castle Mead, Windsor.

GARDENER, age 26, seeks situation, SINGLE-HANDED or otherwise; 11 years' experience; good references, married when suited.—Apply, D. G. SHEPHERD, 9, School Lane, Bushey, Herts.

GARDENER, SECOND, where three or four are kept, or good SINGLE-HANDED; long experience, Inside and Out; single; good ref.—F. STAMP, Chapmanslade, Westbury, Wilts.

GARDENER, SECOND, life experience Inside and Out all branches, present situation two years; estate sold; age 35, no family, abstainer, moderate wages; detached cottage or lodge; can interview.—FRANK BUTLER, Park Hall Gardens, Mansfield Woodhouse, Notts.

FOREMAN, Inside, good practical experience, fruit, plant, Carnation and decorating, seeks situation with bothy; good references.—J. WALKER, Kirtlington, Oxford.

FOREMAN, age 25, with 11 years' Inside experience in good establishments seeks re-engagement; good references, and at liberty.—Apply, C. J. BAKER, Horton, Malpas, Cheshire.

F. WADHAM seeks situation as FOREMAN, Inside, age 28, 11 years' practical experience, fruit, plants, Carnations and decorating; excellent references; bothy preferred.—Silverlands Gardens, Chertsey, Surrey.

FOREMAN, Inside or General, seeks situation in good establishment, 14 years' experience in same, Grapes, Peaches, Melons, Carnations, Chrysants, etc., good refs., including present head; age 30, married, no family; please state wages with cottage.—T. J. H., Box 55, 5, Tavistock Street, Covent Garden, W.C.2.

FOREMAN seeks situation; practical life experience, Inside and Out, fruit, plants, Carnations and decorating; good references; married, age 30.—M. DOHENY, Pickenham Hall Gardens, Swaffham, Norfolk.

MR. C. HOSLER, Aldwickbury Gardens, Harpenden, Herts., recommends A. POWELL to take LEAD, kitchen garden and pleasure grounds; here 5 years; age 33, married, cottage required.

LEADING HAND, pleasure grounds, age 27, understands motor mower; 7 years' experience; good references; cottage essential.—A. A. G., Box 59, 5, Tavistock Street, Covent Garden, W.C.2.

MR. GRAYSMARK, Bury Hill Gardens, Dorking, highly recommends R. RIDDETT as LEADING HAND in pleasure grounds; motor mowers good scythe hand, leaving through change of employer; married, no family, age 37.—Address as above.

LEADING HAND in kitchen garden or as JOURNEYMAN on pleasure grounds; 10 years' experience, excellent references; home counties preferred; bothy.—J. H. S., Box 58, 5, Tavistock Street, Covent Garden, W.C.2.

YOUNG MAN desires change, kitchen garden, age 28, could take duty; bothy preferred; 6 years present.—MELTON, Normanby Gardens, Scunthorpe, Lincs.

MR. R. GREENFIELD, F.R.H.S., can with confidence recommend S. M. HUGHES, who is a thoroughly practical man of a life's experience. Married, age 32.—For further particulars apply, R. GREENFIELD, F.R.H.S., Worcester Villa, Radford Road, Leamington Spa.

GARDENER seeks situation, near London, age 25, 10 years' general experience; under glass preferred; good references; recommended by Mitcham Horticultural Society.—R. C. GIBB, 167, Trevelyan Road, Tooting, S.W.17.

MR. NASH, Grange Gardens, Sutton, thoroughly recommends L. BRIDGER as good FIRST JOURNEYMAN, Inside; 2½ years present situation.

FIRST JOURNEYMAN, Inside, seeks situation, age 23, 9½ years' experience, excellent references; bothy preferred.—H. J. N., Box 53, 5, Tavistock Street, Covent Garden, W.C.2.

JOURNEYMAN seeks situation, fruit and plants, good references, age 22; please state wages.—MIST, 108, High Street, Old Woking, Surrey.

JOURNEYMAN, age 23, seeks situation, Inside and Out, or Outside; 7 years' experience, well recommended; midland counties preferred.—Apply, N. W. H., Box 54, 5, Tavistock Street, Covent Garden, W.C.2.

GARDENER'S SON seeks situation in good establishment, bothy preferred; age 15½ years, some knowledge, willing to learn; please state wages.—GANT, 2, Northfields, Longford, Coventry.

GARDENER HANDYMAN seeks situation, age 30, good reference.—A. WHALE, 39, Goosebridge, Malmesbury, Wilts.

YOUTH wishes situation as GARDEN BOY; wages and bothy; willing to learn; good references age 17.—Apply, H. SHULMAN, 5, Dalkeith Road, Edinburgh.

GENTLEMAN'S daughter seeks post as GARDENER. University diploma in horticulture. Formerly at Kew; experienced in large gardens and in hot-house work.—Apply, I. D. M., Box 57, 5, Tavistock Street, Covent Garden, W.C.2.

TRADE.

MANAGING FOREMAN, general plant nursery, life experience, producing for up-to-date, nurseries, markets, shops.—A. L., 72, Harlesden Gardens, Harlesden, London,

ESTABLISHED 1869 BY APPOINTMENT. **INCORPORATED 1894**

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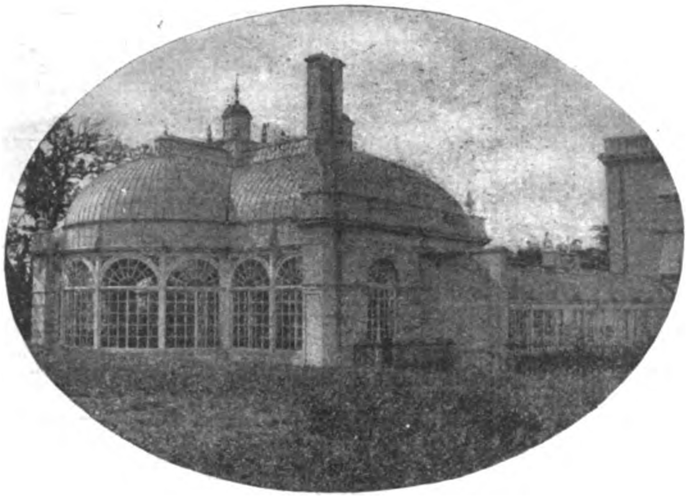

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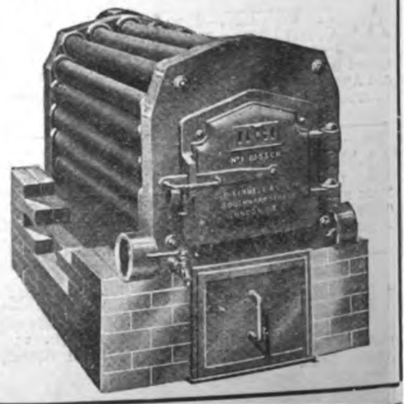

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